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Transit Fact Book

1978–1979 Edition

Annual Summary of Trends in Urban Mass Transportation for the United States of America

The American Public Transit Association (APTA) is the recognized source for statistical data and information about urban mass transportation in the United States. APTA obtains data from member transit systems, and uses the figures to estimate trends for the entire United States transit industry. Because of the time required for transit systems to compile and report the large amount of data required for the ***Transit Fact Book,*** figures for calendar year 1978 are preliminary and will be refined when additional information becomes available. Changes in figures reported for calendar year 1977 and prior years, evident when comparing the ***'78-'79 Transit Fact Book*** with information published in previous editions, result from subsequent availability of additional data.

The 1978-1979 Edition of the ***Transit Fact Book*** is the thirty-sixth annual edition of this publication compiled by APTA and its predecessor organizations. Transit industry trends reported in the ***Transit Fact Book*** are for organizations, both publicly owned and privately owned, providing urban public transit service in the United States of America including the Commonwealth of Puerto Rico.

Summary Tables 1 through 17 in the ***Transit Fact Book*** report operating and financial data for all United States transit systems operating motor buses, heavy rail cars, light rail cars, trolley coaches, cable cars, and inclined plane cars. Data for commuter railroads, common-carrier automated guideway transit railways, ferry boats, and public paratransit operations are not included in Summary Tables 1 through 17 but are reported separately in the "Profile of Transit Services in 1978" section. Nontransit services such as taxi-cab, school bus, unregulated jitney, sightseeing bus, intercity bus, and special application mass transportation systems (e.g., amusement parks and airports) are excluded from all tables.

American Public Transit Association

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Transit: Poised for Growth in the 1980s

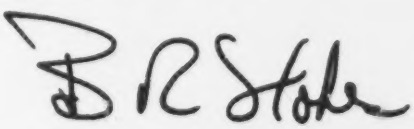
by B. R. Stokes
Executive Vice President
American Public Transit Association

Public transportation is poised for dramatic growth in the 1980s. The last few years have witnessed a dramatic turnaround in public acceptance of mass transportation. Transit ridership increased each of the last six years, and in early 1979 transit experienced its greatest rate of growth in over 35 years. This unprecedented consumer demand is a mandate to expand and improve transit services to prepare for the rapidly changing transportation environment in the next decade.

Few experts doubt that motor gasoline will continue to increase in price and be constrained in supply. Faced with expensive and difficult gasoline purchases, many more motorists will look to transit to meet their basic transportation needs. Many new riders will discover the convenience of transit and remain frequent transit users.

APTA and its member transit systems have begun a number of programs that will help transit systems meet increasing demands for service. Major influxes of federal financial assistance are being sought for transit system expansion and replacement of overused equipment. Transit systems are requesting assurance of continuous fuel supplies so that they can provide essential transportation services when fuel for private use is limited.

Programs to educate the public on how to use transit are being developed throughout the United States. While preparing the public to use transit, transit systems are preparing themselves for growth by seeking ways to streamline procurement of materials and equipment, ways to minimize the impacts of new construction, ways to avoid governmental delays in expanding transit services, and ways to improve transit efficiency to provide the greatest possible community benefit at a reasonable cost.



Glossary of Transit Industry Terms

Adult Cash Fare
Basic full fare paid by one person for one transit ride; excludes transfer charges and zone charges.

Aerial Tramway
System of aerial cables with unpowered passenger vehicles suspended from cables, propelled by separate cables attached to the vehicle suspension system, and powered by engines or motors at a central location not on board the vehicle.

Annual Payroll
Wages and salaries, including overtime and allowances, paid to transit system employees.

Average Annual Earnings per Employee
"Annual Payroll" divided by "Average Number of Employees."

Average Fare per Linked Transit Passenger Trip
"Passenger Revenue" divided by "Linked Transit Passenger Trips."

Average Length of Linked Transit Passenger Trip
"Passenger Miles" divided by "Linked Transit Passenger Trips."

Average Length of Unlinked Transit Passenger Trip
"Passenger Miles" divided by "Unlinked Transit Passenger Trips."

Automatic Guideway Transit
Fixed-guideway rapid transit vehicles operating without vehicle operators or other crewpersons on board the vehicle.

Cable Car
Transit vehicle railway operating in mixed street traffic with unpowered, individually-controlled transit vehicles propelled by moving cables located below the street surface and powered by engines or motors at a central location not on board the vehicle.

Commuter Railroad
That portion of "main-line railroad" (not "electric railway") transportation operations which encompasses urban passenger train service for local short-distance travel between a central city and adjacent suburbs; suburban rail passenger service — using both locomotive-hauled and self-propelled railroad passenger cars — is characterized by multi-trip tickets, specific station-to-station fares, railroad employment practices, and usually only one or two stations in the central business district.

Employer Payroll Taxes
Transit system portion(s) only of federal, state, and local payroll tax obligations.

Ferry Boat
Passenger-carrying marine vessel providing frequent "bridge" service over a fixed route and on a published time schedule between two or more points.

Fringe Benefit Costs
Transit system expenditures for employee compensation in addition to wages, salaries, and employer payroll taxes.

Heavy Rail
Subway-type transit vehicle railway constructed on exclusive private right-of-way with high-level platform stations; formerly known as "subway" or "elevated (railway)."

Inclined Plane
Transit passenger vehicle railway operating over private right-of-way on steep grades with unpowered vehicles propelled by moving cables attached to the vehicles and powered by engines or motors at a central location not on board the vehicle.

Light Rail
Streetcar-type transit vehicle railway constructed on city streets, semiprivate right-of-way, and exclusive private right-of-way; formerly known as "streetcar" ("trolley car") and "subway-surface" depending upon local usage or preference.

Linked Transit Passenger Trips
Transit trips taken by initial-board (originating) transit patrons paying a full fare, a reduced rate of fare, or no fare (free fare); excludes all transfer rides and all charter rides. Identical to "Revenue Passenger Rides" except that all originating free-fare passengers are included.

Miles of Line (One Way)
The total length of transportation right-of-way (streets and highways for motor buses and trolley coaches, track/guideway for railway vehicles) traversed by transit vehicles. In calculating miles of line, the transportation right-of-way is measured only once regardless of the number of transit routes which use any portion of that transportation right-of-way in common. Those portions of the transportation right-of-way over which transit vehicles operate in two directions are measured in one direction only.

Miles of Route (One Way)
The total length of all transit routes. In calculating miles of route, the length of every route is included in the total regardless of the number of routes which use any portion of a street, highway, or railway right-of- way in common. Those portions of a route over which transit vehicles operate in two directions are measured in one direction only.

Motor Bus
Rubber tired, self-propelled, manually steered transit vehicle with fuel supply caried on board the vehicle.

Passenger Miles
The number of person-miles traveled by all passengers riding transit vehicles; one person traveling one mile aboard a transit vehicle is one passenger mile.

Public Paratransit
Collective passenger transportation for the general public and/or special categories of persons on a regular and predictable basis through demand-

responsive scheduling and/or flexible routing of vehicles. The term public paratransit includes dial-a-ride, "shared-ride taxi," publicly-sponsored vanpools, subscription bus service, airport limousines, and jitneys (where legal and formally established). Taxicab services which provide "shared-ride" service only at the discretion of the driver and/or the passenger are not public paratransit.

Publicly Owned Transit System
A transit system owned by any municipality, county, regional authority, state, or other governmental agency including a transit system operated or managed by a private management firm under contract to the government agency owner.

Rapid Transit
Transit vehicles operating over completely grade-separated private right-of-way. The term rail rapid transit, also known as "rapid rail transit," applies to both operation of light rail vehicles over exclusive private right-of-way and operation of heavy rail vehicles; the term bus rapid transit applies to operation of motor buses over exclusive bus roads ("rapid busways").

Revenue Passenger Rides (Revenue Passengers)
Single-vehicle transit rides by initial-board (first-ride) transit patrons only; excludes all transfer rides and all non-revenue rides.

Single-Vehicle Transit Ride
One person traveling aboard one transit vehicle.

Total Labor Cost
Sum of "Annual Payroll," "Employer Payroll Taxes," and "Fringe Benefit Costs."

Total Passenger Rides (Total Passengers)
Combined total of all single-vehicle transit rides by (1) initial-board (first-ride) revenue passengers, (2) transfer passengers on second and successive rides, and (3) non-revenue passengers entitled to transportation without charge.

Total Vehicle Miles Operated
Sum of all passenger vehicle miles operated in line (regular) service, special (charter) service, and non-revenue service. When vehicles are operated in trains, each vehicle is counted separately, e.g., an eight-vehicle train operating for one mile equals eight vehicle-miles.

Transit Route
A travel path over which a transit vehicle operates; defined by a unique combination of (1) departure terminus, (2) destination terminus, (3) intermediate streets, highways, or railway, and (4) intermediate stops.

Transit System
An organization providing intraurban common-carrier passenger service over at least one regular fixed route with a published time schedule, not including variable-route service, unscheduled service, or interurban service.

Trolley Coach

Rubber-tired transit vehicle, manually steered, propelled by electric motors drawing current — normally through overhead wires — from a central power source not on board the vehicle.

Unlinked Transit Passenger Trips

Transit trips taken by both initial-board (originating) and transfer (continuing) transit patrons; includes charter rides and special rides. Each passenger is counted each time that person boards a transit vehicle regardless of the type of fare paid or transfer presented.

Glossary of Transit Fact Book Financial Terms

U.S. Department of transportation regulations require that beginning in 1978 all transit systems receiving financial assistance for operations from the federal government must report financial data and operating data annually in conformance with the "Urban Mass Transportation Act, Section 15, Uniform System of Accounts and Records." Many transit systems, however, maintain accounts for internal use based on one or more of three major accounting systems in general use before 1978: "Interstate Commerce Commission Accounting System for Common and Contract Motor Carriers of Passengers," "Interstate Commerce Commission Acconting System for Electric Railways," and "American Transit Accountants' Association Classification of Accounts for Bus Operating Companies."

Financial terms used in the *'78-'79 Transit Fact Book* are an amalgamation of descriptive terminology selected in part from each of these four accounting systems to permit gross aggregation of financial data for the entire U.S. transit industry. A financial term used within two or more of these accounting systems generally involves varying individual definitions, and various terms can be used to define similar accounts. The following definitions of financial terms do not identify specific ledger accounts from any accounting system listed above and are not intended to serve as model definitions of financial terms in publications other than the *'78-'79 Transit Fact Book*.

Transit system financial data reported in the *'78-'79 Transit Fact Book* are based on the accrual system of accounting. Unlike the cash system of accounting which records only monies actually received or monies actually paid out, the accrual system of accounting records revenues received as well as anticipated and expenses incurred as well as anticipated during the accounting period.

Passenger Revenue

Fares, including transfer charges and zone charges, paid by transit passengers traveling aboard transit vehicles operating in regular service; also known as "farebox revenue."

Other Operating Revenue

Revenue derived from provision of transit service other than line (regular) service; includes charter service revenues, special service revenues, and sale of advertising space aboard transit vehicles.

Total Operating Revenue
Total revenue derived from provision of transit service; the sum of "Passenger Revenue" and "Other Operating Revenue."

Net Auxiliary Operating Revenue
Net revenue from affiliated facilities and organizations rendering services other than provision of transit service.

Non-Operating Income
Net income from transit system facilities or operations not associated with providing transportation or transit service.

Local Operating Assistance
Financial assistance for transit operations (not capital expenditures) which originated at the local government level.

State Operating Assistance
Financial assistance for transit operations (not capital expenditures) which originated at the state government level.

Federal Operating Assistance
Financial assistance for transit operations (not capital expenditures) which originated at the federal government level.

Total Operating Assistance
Sum of "Local Operating Assistance," "State Operating Assistance," and "Federal Operating Assistance."

Total Revenue
Total receipts derived from provision of transit service plus additional monies related to provision of transit service but derived from other sources; the sum of "Total Operating Revenue," "Net Auxiliary Operating Revenue," "Non-Operating Income," and "Total Operating Assistance."

Transportation Expense
Total expense of all labor, materials, fees, and rents required for operating transit passenger vehicles and passenger stations including all fuels for vehicle propulsion except electric propulsion power.

Vehicle Maintenance Expense
Total expense of all labor, materials, services, and equipment used to repair and to service transit passenger vehicles and service vehicles.

Nonvehicle Maintenance Expense
Total expense of all labor, materials, services and equipment used to repair and service transit system way and structures, vehicle movement control systems, fare collection equipment, communication systems, buildings, and grounds, and equipment other than vehicles; includes expense of electric propulsion power for transit passenger vehicles.

General Administration Expense
Total expense of all labor, materials, and fees associated with general office functions, insurance, safety, legal services, and customer services.

Depreciation and Amortizaion

Total decline in value of transit system assets incurred through use of tangible property (depreciation) and intangible property (amortization). Because property is depreciated or amortized on a formula basis over several years, the amount recorded as depreciation or amortization normally does not represent the actual money spent for property in any specific time period.

Many publicly owned transit systems receive financial assistance for the purchase of property (capital assistance). Although the property purchased with capital assistance might be depreciated or amortized and thus reported as an "operating expense" in the ***Transit Fact Book***, any financial assistance received for the purchase of property is not included in "operating revenue" or "operating assistance" amounts in the ***Transit Fact Book***.

Net Operating Rents

Net amount of (a) all expense paid by a transit system for rents associated with transit operations and (b) all revenue received by a transit system from property associated with transit operations rented to other parties.

Total Operating Expense

The sum of all transit system operating expenses: "Transportation Expense," "Vehicle Maintenance Expense," "Nonvehicle Maintenance Expense," "General Administration Expense," "Depreciation and Amortization,"and "Net Operating Rents."

Total Income Deductions

Interest and discount expenses, including interest on long-term obligations, and obligations associated with losses or defaults by parties contracting with the transit system.

Income Taxes

Amount of income taxes attributed to transit operations, including income tax reductions (negative adjustments) allowed on income tax obligations resulting from non-transit operations of a privately-owned company operating a transit system in addition to other business.

Total Expense

Total expenditures related to provision of transit service; the sum of "Total Operating Expense," "Total Income Deductions," and "Income Taxes."

Statistical Trends of Transit Finances and Operations

SECTION A

The United States Transit Industry in 1978

Number of Operating Transit Systems (December 31, 1978)

Combined Heavy Rail, Light Rail, Trolley Coach Commuter Railroad, and Motor Bus	2
Combined Heavy Rail, Light Rail, and Motor Bus	1
Combined Heavy Rail, Trolley Coach, and Motor Bus	1
Combined Light Rail, Trolley Coach, Cable Car, and Motor Bus	1
Combined Light Rail, Inclined Plane, and Motor Bus	1
Combined Heavy Rail and Motor Bus	3
Combined Light Rail and Motor Bus	3
Combined Trolley Coach and Motor Bus	1
Combined Inclined Plane and Motor Bus	1
Combined Urban Ferry Boat and Motor Bus	1
Combined Commuter Railroad and Motor Bus	1
Combined Aerial Tramway and Motor Bus	1
Heavy Rail Only	3
Light Rail Only	1
Motor Bus Only	948
Automated Guideway Transit (AGT) Only[a]	1
Commuter Railroad Only[a]	17
Urban Ferry Boat Only[a]	16
Total Operating Transit Systems	1,003

Passenger Vehicles Owned and Leased (December 31, 1978)

Heavy Rail Cars	9,567
Light Rail Cars	944
Trolley Coaches	593
Cable Cars	39
Inclined Plane Cars	4
Aerial Tramway Cars	2
Motor Buses	52,866
Automated Guideway Transit (AGT) Cars[a]	45
Commuter Railroad Cars[a]	4,864
Urban Ferry Boats[a]	65
Total Passenger Vehicles Owned and Leased	68,989

Total Operating Revenue (Millions) — 1978

Heavy Rail	$ 664.9
Light Rail	27.4
Trolley Coach	14.6
Motor Bus	1,671.4
Commuter Railroad[a]	370.0
Urban Ferry Boat[a]	41.4
Total Operating Revenue[b]	$ 2,789.7

Linked Transit Passenger Trips (Millions) — 1978

Heavy Rail	1,415.0
Light Rail	79.5
Trolley Coach	51.1
Motor Bus	4,405.8
Commuter Railroad[a]	267.0
Urban Ferry Boat[a]	61.7
Total Linked Transit Passenger Trips[b]	6,292.1

Unlinked Transit Passenger Trips (Millions) — 1978

Heavy Rail	2,285.0
Light Rail	104.0
Trolley Coach	70.0
Motor Bus	5,142.0
Commuter Railroad[a]	267.0
Urban Ferry Boat[a]	61.7
Total Unlinked Transit Passenger Trips[b]	7,944.7

Estimated Passenger Miles (Millions) — 1978

Heavy Rail	10,329.5
Light Rail	392.0
Trolley Coach	188.7
Motor Bus	20,708.2
Commuter Railroad[a]	5,526.9
Urban Ferry Boat[a]	333.2
Total Estimated Passenger Miles[b]	37,493.5

Vehicle Miles Operated (Millions) — 1978

Heavy Rail	363.5
Light Rail	19.5
Trolley Coach	13.3
Motor Bus	1,630.5
Commuter Railroad[a]	159.0
Urban Ferry Boat[a]	1.6
Total Vehicle Miles Operated[b]	2,188.9

Energy Consumed (Millions) — 1978 (c)

Diesel Fuel (Gallons)	422.0
Gasoline (Gallons)	9.3
Propane (Gallons)	0.0
Electricity (Kilowatt Hours)	2,223.0

(a) Not included in "Transit Industry" Summary Tables 1 through 17.
(b) Includes Cable Car, Inclined Plane, Automated Guideway Transit, and Aerial Tramway.
(c) Excludes Automated Guideway Transit, Commuter Railroad, and Urban Ferry Boat.

Changes In Table Headings

Beginning in 1978, all United States transit systems receiving financial assistance for operations from the U.S. government were required to report standardized annual financial and operating data to the Urban Mass Transportation Administration. These reports are required by Section 15 of the Urban Mass Transportation Act of 1964, as amended, and are known as the "Urban Mass Transportation (UMT) Act, Section 15, Uniform System of Accounts and Records." The Section 15 reporting system supersedes three accounting systems that were commonly used by transit systems: (1) "Interstate Commerce Commission (ICC) Accounting System for Common and Contract Motor Carriers of Passengers," (2) "Interstate Commerce Commission (ICC) Accounting System for Electric Railways," and (3) "American Transit Accountants' (ATA) Association Classification of Accounts for Bus Operating Companies."

APTA surveys of its transit system members used to prepare the ***Transit Fact Book*** conform as closely as possible to the Section 15 reporting system. Because Section 15 financial accounts and operating statistics differ in many respects from previously used accounting systems, care must be taken to note changes in the meaning of data headings in the ***Transit Fact Book***.

In Table 13, "Trend of Transit Employment, Compensation, and Labor Costs," the type of expenditure in each column has changed. In ICC accounts and ATA accounts, employee compensation in the form of paid sick leave, paid vacation time, and paid holidays is classified as payroll. In Section 15 accounts these types of compensation are classified as fringe benefits. Beginning with calendar year 1977, as transit systems converted to Section 15 accounts, reclassification of these compensation types resulted in a shift of these labor related expenses from payroll accounts to fringe benefit accounts.

The expense categories reported in Table 2, "Transit Industry Financial Statement for 1978," and in Table 4, "Trend of Transit Expense," differ from previous editions of the ***Transit Fact Book***. The major expense categories of the "ICC System of Accounts" and the "ATA Classification of Accounts" are replaced by "UMT Act Section 15" accounts as follows: (1) ICC and ATA "Transportation" is replaced by a similar Section 15 account "Transportation," (2) ICC and ATA "Maintenance and Garage" is replaced by two Section 15 accounts, "Vehicle Maintenance Expense" and "Nonvehicle Maintenance Expense," (3) ICC and ATA "Traffic, Solicitation, and Advertising" and "Administrative and General" are combined into Section 15 account "General Administration Expense," and (4) ICC and ATA "Operating Taxes and Licenses" has been eliminated, operating taxes being allocated to the account to which each tax applies in the Section 15 accounting system.

Table 8, "Trend of Originating and Continuing Transit Passenger Trips," has been changed to conform to the Section 15 method of counting unlinked passenger trips. Ridership data in Table 8 for "All Modes Passenger Rides/Trips" are comparable from 1940 through 1978; ridership data for individual modes, however, are comparable only from 1940 through 1976 and separately from 1977 through 1978.

TABLE 2

Transit Industry Financial Statement for 1978 (P)

REVENUES	
Passenger Revenue	$ 2,270,969,000
Other Operating Revenue	110,117,000
Total Operating Revenue	$ 2,381,086,000
Net Auxiliary Operating Revenue	$ 5,296,000
Non-Operating Income	63,488,000
Total Non-Operating Revenue	$ 68,784,000
Local Operating Assistance	$ 977,780,000
State Operating Assistance	564,334,000
Federal Operating Assistance	689,548,000
Total Operating Assistance	$ 2,231,662,000
Total Revenue	$ 4,681,532,000
EXPENSES	
Transportation Expense	$ 2,508,705,000
Vehicle Maintenance Expense	776,595,000
Nonvehicle Maintenance Expense	292,065,000
General Administration Expense	961,741,000
Depreciation and Amortization	149,644,000
Net Operating Rents	23,302,000
Total Operating Expense	$ 4,712,052,000
Total Income Deductions	$ 77,360,000
Income Taxes	(463,000)
Total Expense	$ 4,788,949,000

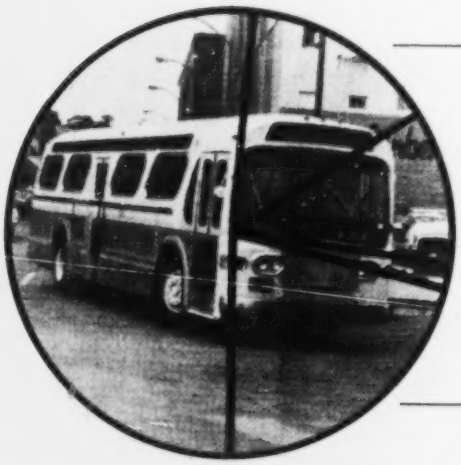
P = Preliminary

NOTE: The difference between "total revenue" and "total expense" is due to several factors including (1) use of the accrual system of accounting rather than the cash system of accounting, (2) amalgamation of accounts of transit systems recording revenue and expense in a variety of fiscal or calendar years, (3) inclusion of depreciation and amortization costs in "total expense" that are met from revenue sources not included in "total revenue," (4) exclusion of "extraordinary revenues" and "extraordinary expenses," (5) actual profit or loss of privately owned transit systems, and (6) actual surplus or deficit of publicly owned transit systems.

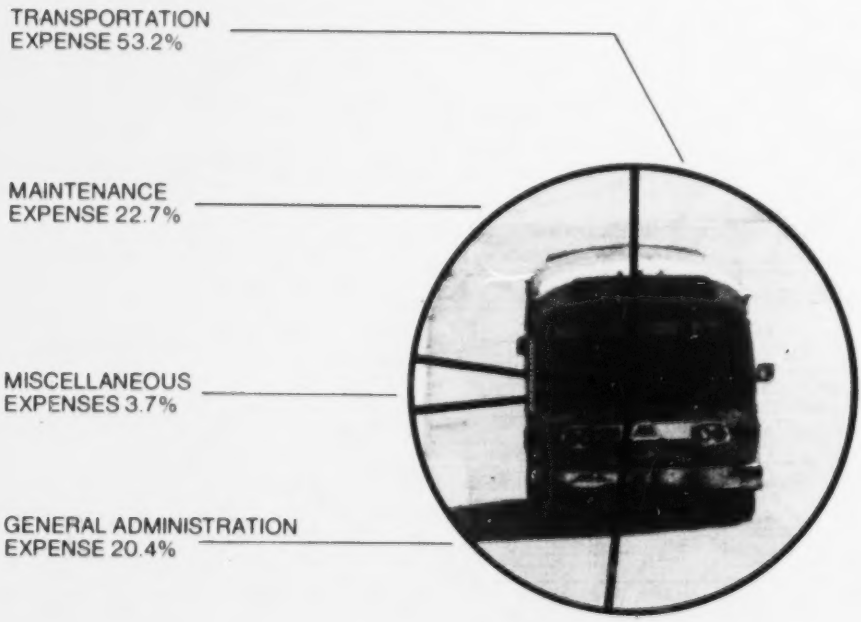
Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

FIGURE I

Transit Industry Revenue and Expense in 1978



TRANSIT REVENUE



TRANSIT EXPENSE

TABLE 1

Transit Systems Classified by Vehicle Type and Population Group*

POPULATION OF URBANIZED AREA	ALL-RAIL SYSTEMS (a)	MULTI-MODE SYSTEMS (b)	ALL-BUS SYSTEMS	TOTAL SYSTEMS
500,000 and greater	4	16	436[c,d]	456[c,d]
250,000 to 500,000	0	0	63	63
100,000 to 250,000	0	1	132	133
50,000 to 100,000	0	0	87	87
Less than 50,000 (e)	0	0	230	230
Total U.S. Transit Systems	4	17	948	969

* As of December 31, 1978

(a) Includes transit systems operating one of the following modes exclusively: either heavy rail or light rail.

(b) Includes transit systems operating two or more of the following modes: heavy rail, light rail, trolley coach, motor bus, cable car, inclined plane, ferry boat, and aerial tramway.

(c) Commuter bus service operated by Greyhound Lines, Inc. and affiliates in 20 Urbanized Areas counted as one transit system and commuter bus service operated by Trailways, Inc. and affiliates in 9 Urbanized Areas counted as one transit system.

(d) Includes 156 motor bus owners which function collectively as 12 "bus-owners associations" regulated by the State of New Jersey Board of Public Utility Commissioners.

(e) Population of urban place with less than 50,000 population outside an urbanized area.

NOTE: Table excludes exclusive urban ferry boat, automated guideway transit, and commuter railroad.

TABLE 3

Trend of Transit Revenues

CALENDAR YEAR	PASSENGER REVENUE	TOTAL OPERATING REVENUE	NON-OPERATING AND AUXILIARY REVENUE	OPERATING ASSISTANCE				TOTAL REVENUE
				LOCAL	STATE	FEDERAL	TOTAL	
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
1940	$ 701.5	$ 737.0	—	—	—	—	—	—
1945	1,313.7	1,380.4	—	—	—	—	—	—
1950	1,386.8	1,452.1	—	—	—	—	—	—
1955	1,358.9	1,426.4	—	—	—	—	—	—
1960	1,334.9	1,407.2	—	—	—	—	—	—
1965	1,340.1	1,443.8	—	—	—	—	—	—
1966	1,385.4	1,478.5	—	—	—	—	—	—
1967	1,457.4	1,556.0	—	—	—	—	—	—
1968	1,470.2	1,562.7	—	—	—	—	—	—
1969	1,554.7	1,625.6	—	—	—	—	—	—
1970	1,639.1	1,707.4	—	—	—	—	—	—
1971	1,661.9	1,740.7	—	—	—	—	—	—
1972	1,650.7	1,728.5	—	—	—	—	—	—
1973	1,683.7	1,797.6	—	—	—	—	—	—
1974	1,805.2	1,939.7	—	—	—	—	—	—
1975	1,860.5	2,002.4	$ 40.6	$ 699.4	$ 406.6	$ 301.8	$ 1,407.8	$ 3,450.8
1976	2,025.6	2,161.1	75.0	857.4	367.1	422.9	1,647.3	3,883.4
1977	2,157.1	2,280.0	73.6	841.1	478.4	584.5	1,904.1	4,257.7
P 1978	2,271.0	2,381.1	68.8	977.8	564.3	689.5	2,231.7	4,681.5

P = Preliminary — Data not available NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat

TABLE 4

Trend of Transit Expenses

CALENDAR YEAR	TRANSPORTATION	MAINTENANCE		GENERAL ADMINISTRATION	DEPRECIATION AND AMORTIZATION	NET OPERATING RENTS	TOTAL OPERATING EXPENSE
		VEHICLE	NONVEHICLE				
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
1940	—	—	—	—	—	—	$ 660.7
1945	—	—	—	—	—	—	1,231.7
1950	—	—	—	—	—	—	1,385.7
1955	—	—	—	—	—	—	1,370.1
1960	—	—	—	—	—	—	1,376.5
1965	—	—	—	—	—	—	1,454.4
1966	—	—	—	—	—	—	1,515.6
1967	—	—	—	—	—	—	1,622.6
1968	—	—	—	—	—	—	1,723.8
1969	—	—	—	—	—	—	1,846.1
1970	—	—	—	—	—	—	1,995.6
1971	—	—	—	—	—	—	2,152.1
1972	—	—	—	—	—	—	2,241.6
1973	—	—	—	—	—	—	2,536.1
1974	—	—	—	—	—	—	3,239.3
1975	$ 1,876.5	$ 814.4[a]		$ 846.4	$ 121.0	$ 47.6	3,705.9
1976	2,033.4	894.1[a]		929.9	136.3	27.2	4,020.9
1977	2,219.8	972.7[a]		928.5	161.4	22.4	4,304.8
P 1978	2,508.7	$ 776.6	$ 292.1	961.7	149.6	23.3	4,712.1

P = Preliminary — Data not available

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

(a) Vehicle Maintenance and Nonvehicle Maintenance combined.

TABLE 5

Trend of Operating Revenue

CALENDAR YEAR	RAILWAY			TROLLEY COACH	MOTOR BUS	TOTAL OPERATING REVENUE
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL			
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
1940	$ 327.8	$ 128.3	$ 456.1	$ 25.0	$ 255.9	$ 737.0
1945	560.1	149.4	709.5	68.4	602.5	1,380.4
1950	361.7	216.4	578.1	122.0	752.0	1,452.1
1955	175.5	264.3	439.8	130.8	855.8	1,426.4
1960	87.6	281.8	369.4	81.9	955.9	1,407.2
1965	55.7	310.1	365.8	41.7	1,036.3	1,443.8
1966	58.7	306.5	365.2	39.2	1,074.1	1,478.5
1967	52.5	352.0	404.5	35.6	1,115.9	1,556.0
1968	53.1	358.2	411.3	35.9	1,115.5	1,562.7
1969	54.8	380.4	435.2	32.5	1,157.9	1,625.6
1970	55.2	384.4	439.6	31.5	1,236.3	1,707.4
1971	48.8	379.4	428.2	32.3	1,280.2	1,740.7
1972	48.4	417.2	465.6	32.8	1,230.1	1,728.5
1973	48.5	461.0	509.5	25.2	1,262.9	1,797.6
1974	36.5	505.8	542.3	20.1	1,377.3	1,939.7
1975	28.9	517.1	548.8[a]	15.9	1,437.7	2,002.4
1976	26.9	630.7	660.2[a]	15.3	1,485.6	2,161.1
1977	25.0	653.2	680.8[a]	14.8	1,584.4	2,280.0
P 1978	27.4	664.9	695.1[a]	14.6	1,671.4	2,381.1

P = Preliminary

(a) Includes cable car and inclined plane.

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

TABLE 6

Trend of Passenger Revenue

CALENDAR YEAR	RAILWAY			TROLLEY COACH	MOTOR BUS	TOTAL PASSENGER REVENUE
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL			
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
1940	$ 304.0	$ 123.8	$ 427.8	$ 24.9	$ 248.8	$ 701.5
1945	513.4	142.3	655.7	68.0	590.0	1,313.7
1950	322.4	209.6	532.0	120.6	734.2	1,386.8
1955	146.6	257.5	404.1	128.5	826.3	1,358.9
1960	74.0	296.6	343.6	81.0	910.3	1,334.9
1965	48.6	279.0	327.6	40.6	971.9	1,340.1
1966	51.8	297.0	348.8	38.5	998.1	1,385.4
1967	44.8	340.4	385.2	34.9	1,037.3	1,457.4
1968	44.0	341.7	385.7	34.8	1,049.7	1,470.2
1969	45.9	362.5	408.4	31.5	1,114.8	1,554.7
1970	46.6	368.5	415.1	30.4	1,193.6	1,639.1
1971	40.1	363.8	403.9	31.2	1,226.8	1,661.9
1972	39.6	401.9	441.5	31.4	1,177.8	1,650.7
1973	38.7	437.6	476.3	23.6	1,183.8	1,683.7
1974	31.7	486.7	518.4	17.2	1,269.6	1,805.2
1975	28.1	504.3	535.0[a]	15.4	1,310.1	1,860.5
1976	25.7	616.5	644.7[a]	15.0	1,366.0	2,025.6
1977	23.9	634.2	660.6[a]	14.5	1,482.0	2,157.1
P 1978	26.6	652.2	681.4[a]	14.4	1,575.2	2,271.0

P = Preliminary
(a) Includes cable car and inclined plane.

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

TABLE 7

Trend of Transit Passenger Trips Classified by Population Groups

CALENDAR YEAR	HEAVY RAIL	SURFACE LINES						TOTAL TRIPS/ RIDES
		500,000 AND OVER	250,000-500,000	100,000-250,000	50,000-100,000	LESS THAN 50,000	SUBURBAN AND OTHER	
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
Revenue Passenger Rides								
1940	2,282	4,305	1,312	1,020	742	291	552	10,504
1945	2,555	6,969	2,920	2,359	1,899	932	1,348	18,982
1950	2,113	5,207	2,007	1,585	1,323	728	882	13,845
1955[a]	1,741	3,478	1,286	953	786	360	585	9,189
1960[a]	1,670	2,997	911	691	554	230	468	7,521
1965[b]	1,678	3,000	606	416	474	192	432	6,798
1966[b]	1,584	3,003	608	413	483	194	386	6,671
1967[b]	1,632	2,945	597	409	469	190	374	6,616
1968[b]	1,627	2,886	581	396	455	171	375	6,491
1969[b]	1,656	2,787	565	365	422	150	365	6,310
1970[b]	1,574	2,610	529	342	395	140	342	5,932
1971[c]	1,494	2,399	739	234	196	107	328	5,497
1972[c]	1,446	2,330	681	220	182	97	297	5,253
1973[c]	1,424	2,386	682	229	175	104	294	5,294
1974[d]	1,435	3,544	269	231	49	77	(d)	5,606
1975[d]	1,388	3,604	286	226	58	81	(d)	5,643
1976[d]	1,353	3,632	306	230	67	85	(d)	5,673
Unlinked Transit Passenger Trips								
1977[d]	2,149	4,293	375	284	82	103	(d)	7,286
P 1978[d]	2,285	4,438	395	296	89	113	(d)	7,616

P = Preliminary

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

(a) 1950 U.S. Census of Population; transit systems assigned by population of headquarters city.

(b) 1960 U.S. Census of Population; transit systems assigned by population of headquarters city.

(c) 1970 U.S. Census of Population; transit systems assigned by population of headquarters city.

(d) 1970 U.S. Census of Population; transit systems assigned by population of urbanized area excepting urban places of less than 50,000 population outside urbanized areas.

FIGURE II

Transit Ridership in the 1970s

The 1970s have been a period of growth and expansion for the transit industry. Reversing a two-decade trend of declining patronage, transit ridership increased for the sixth consecutive year in 1978.

Transit carried over 23 billion unlinked passenger trips at its peak in 1946. Gasoline rationing, shortages of automobile parts, and high employment had combined to increase transit ridership by 80 percent during World War II. During the post-war period government home-financing policies and road building programs which fostered urban sprawl, along with a reduction from a 6 day to a 5 day work-week, were major factors in continually declining transit ridership until 1972.

Financial assistance from federal, state, and local governments permitted rehabilitation and expansion of transit service that resulted in increased ridership beginning in 1972. The continued growth of transit ridership has been spurred by the increasing cost of operating private automobiles, recognition by the public of the convenience of riding transit, and publicly owned transit systems being operated as a public service.

The amount of work performed by transit systems has increased more rapidly than ridership figures indicate. In 1946 the length of an average urban bus trip was less than three and one-half miles whereas in today's more spread out cities the average bus trip is almost five miles. In 1978 transit needed to provide 40 percent more service per passenger than in 1942. Longer trips and greater numbers of passengers in the 1970s demonstrate the continuing demand for transit in America's cities.

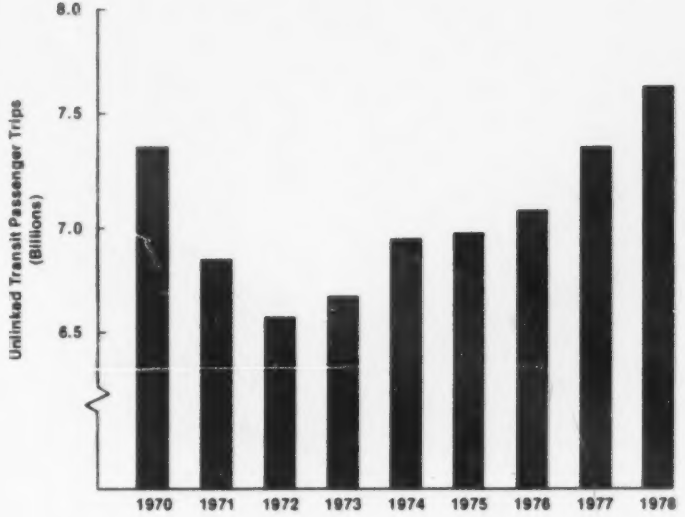


TABLE 8

Trend of Originating and Continuing Transit Passenger Trips

CALENDAR YEAR	RAILWAY			TROLLEY COACH	MOTOR BUS	ALL MODES PASSENGER RIDES/TRIPS
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL			
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
Total Passenger Rides						
1940	5,943	2,382	8,325	534	4,239	13,098
1945	9,426	2,698	12,124	1,244	9,886	23,254
1950	3,904	2,264	6,168	1,658	9,420	17,246
1955	1,207	1,870	3,077	1,202	7,250	11,529
1960	463	1,850	2,313	657	6,425	9,395
1965	276	1,858	2,134	305	5,814	8,253
1966	282	1,753	2,035	284	5,764	8,083
1967	263	1,938	2,201	248	5,723	8,172
1968	253	1,928	2,181	228	5,610	8,019
1969	249	1,980	2,229	199	5,375	7,803
1970	235	1,881	2,116	182	5,034	7,332
1971	222	1,778	2,000	148	4,699	6,847
1972	211	1,731	1,942	130	4,495	6,567
1973	207	1,714	1,921	97	4,642	6,660
1974	150	1,726	1,876	83	4,976	6,935
1975	124	1,673	1,810[a]	78	5,084	6,972
1976	112	1,632	1,759[a]	75	5,247	7,081
Unlinked Transit Passenger Trips						
1977	103	2,149	2,267[a]	70	4,949	7,286
P 1978	104	2,285	2,404[a]	70	5,142	7,616

P = Preliminary

(a) Includes cable car and inclined plane.

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

TABLE 9

Trend of Originating Transit Passenger Trips

CALENDAR YEAR	RAILWAY			TROLLEY COACH	MOTOR BUS	ALL MODES PASSENGER RIDES/TRIPS
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL			
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
Revenue Passenger Rides						
1940	4,182	2,282	5,464	419	3,620	10,504
1945	7,081	2,555	9,636	1,001	8,335	18,982
1950	2,790	2,213	4,903	1,261	7,681	13,845
1955	845	1,741	2,586	869	5,734	9,189
1960	335	1,670	2,005	447	5,069	7,521
1965	204	1,678	1,882	186	4,730	6,798
1966	211	1,584	1,795	174	4,702	6,671
1967	196	1,632	1,828	155	4,663	6,616
1968	187	1,627	1,814	152	4,524	6,491
1969	183	1,656	1,840	135	4,335	6,310
1970	172	1,574	1,746	128	4,058	5,932
1971	155	1,494	1,649	113	3,735	5,497
1972	147	1,446	1,593	100	3,561	5,253
1973	144	1,424	1,567	74	3,653	5,294
1974	114	1,435	1,549	60	3,998	5,606
1975	94	1,388	1,492[a]	56	4,095	5,643
1976	86	1,353	1,450[a]	54	4,168	5,673
Linked Transit Passenger Trips						
1977	79	1,335	1,425[a]	51	4,246	5,723
P 1978	80	1,415	1,506[a]	51	4,406	5,963

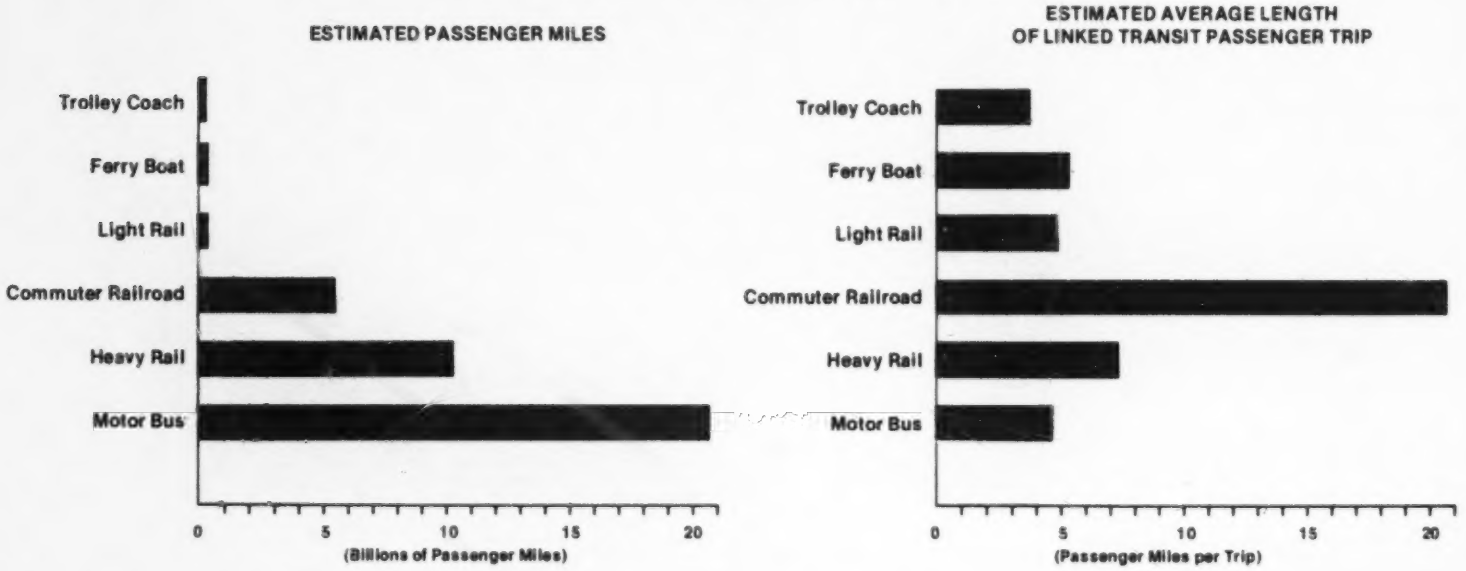
P = Preliminary

(a) Includes cable car and inclined plane.

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

FIGURE III

Estimated Passenger Miles and Estimated Average Length of Linked Transit Passenger Trip by Vehicle Mode in 1978



NOTE: Passenger-mile and average transit passenger trip-length data are not collected by transit systems on a continuing basis. Data presented in Figure III are estimated by APTA from special studies conducted by a limited number of transit systems and metropolitan planning organizations. Average passenger trip-length data from national sources presented in Table 10 depict the variability of such studies. Because of the uncertainty attached to all transit passenger-mile and average trip-length data, Figure III and Table 10 illustrate the relative number of passenger miles and the relative length of passenger trip on each type of transit service rather than the absolute number of passenger miles and the absolute length of passenger trip on each type of transit service.

TABLE 10

Estimates of Average Length of Linked Transit Passenger Trips

SOURCE	ESTIMATED AVERAGE LENGTH OF LINKED TRANSIT PASSENGER TRIP IN MILES							
	HEAVY RAIL	MOTOR BUS	LIGHT RAIL	TROLLEY COACH	ALL TRANSIT (Except Commuter Railroad and Urban Ferry Boat)	COMMUTER RAILROAD	URBAN FERRY BOAT	ALL TRANSIT
Nationwide Personal Transportation Study[a] (Home-to-Work Trips Only)	13.7	6.8	6.8	—	—	25.6	—	—
U.S. Census of 21 Metropolitan Areas[b] (Home-to-Work Trips Only)	10.1	7.0	7.0	—	—	24.4	—	8.9
U.S. Census of 20 Metropolitan Areas[c] (Home-to-Work Trips Only)	10.2	5.0	5.0	—	—	36.0	—	8.8
American Public Transit Association Estimate[d]	**7.3**	**4.7**	**4.9**	**3.7**	**5.5**	**20.7**	**5.4**	**6.0**
National Transportation Report[e]	6.3	5.4	—	—	—	17.3	—	5.6

(a) ***Nationwide Personal Transportation Study***, U.S. Department of Transportation/Federal Highway Administration, Washington, DC, 1973; Home-to-Work Trips Only.

(b) ***Selected Characteristics of Travel to Work in 21 Metropolitan Areas: 1975***, U.S. Department of Commerce, Bureau of the Census, Washington, DC, 1978; Home-to-Work Trips Only.

(c) ***Selected Characteristics of Travel to Work in 20 Metropolitan Areas: 1976***, U.S. Department of Commerce, Bureau of the Census, Washington, DC, 1978; Home-to-Work Trips Only. Note: References (b) and (c) represent two separate samples of a total of 41 metropolitan areas.

(d) ***'78-'79 Transit Fact Book***, American Public Transit Association, Washington, DC, 1979; All Transit Trips.

(e) ***1974 National Transportation Report, Profiles of Public Transportation Plans and Programs***, U.S. Department of Transportation, Washington, DC, 1975. Data converted from average length of unlinked transit passenger trip to average length of linked passenger trip by APTA; All Transit Trips.

TABLE 11

Trend of Passenger Vehicle Miles Operated

CALENDAR YEAR	RAILWAY			TROLLEY COACH	MOTOR BUS	TOTAL VEHICLE MILES OPERATED
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL			
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
1940	844.7	470.8	1,315.5	86.0	1,194.5	2,596.0
1945	939.8	458.4	1,398.2	133.3	1,722.3	3,253.8
1950	463.1	443.4	906.5	205.7	1,895.4	3,007.6
1955	178.3	382.8	561.1	176.5	1,709.9	2,447.5
1960	74.8	390.9	465.7	100.7	1,576.4	2,142.8
1965	41.6	395.3	436.9	43.0	1,528.3	2,008.2
1966	42.9	378.9	421.8	40.1	1,521.7	1,983.6
1967	37.8	396.5	434.3	36.5	1,526.0	1,996.8
1968	37.5	406.8	444.3	36.2	1,508.2	1,988.7
1969	36.0	416.6	452.6	35.8	1478.3	1,966.7
1970	33.7	407.1	440.8	33.0	1,409.3	1,883.1
1971	32.7	407.4	440.0	30.8	1,375.5	1,846.3
1972	31.6	386.2	417.8	29.8	1,308.0	1,755.6
1973	31.2	407.3	438.5	25.7	1,370.4	1,834.6
1974	26.9	431.9	458.8	17.6	1,431.0	1,907.4
1975	23.8	423.1	448.4[a]	15.3	1,526.0	1,989.7
1976	21.1	407.0	429.6[a]	15.3	1,581.4	2,026.3
1977	20.4	361.3	383.2[a]	14.8	1,623.3	2,021.3
P 1978	19.5	363.5	384.5[a]	13.3	1,630.5	2,028.3

P = Preliminary
(a) Includes cable car and inclined plane.

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

FIGURE IV

Transit Vehicle Operating Cost Over Two Decades

Between 1960 and 1978 the cost of operating a transit vehicle a single mile increased 63% in constant 1978 dollars, from $1.42 to $2.32. This increase in transit operating costs is a direct result of changes in transit ownership and operating policy and excessive price increases in items used by transit systems.

Most large transit systems went from private to public ownership in the 1960s and early 1970s. In order to maintain profit, private transit systems had been forced to defer maintenance and eliminate customer services to reduce costs. When public authorities took over former privately owned systems, large increases in spending were needed for improved vehicle maintenance, larger public relations staffs, long term planning, and special services.

Federal government policies have also increased transit costs. More complicated transit buses necessary to meet federal handicapped accessibility requirements are more costly to maintain and weigh more, thus using more fuel. Special services for the handicapped have high administrative and operating costs. At the same time, items purchased by transit systems have increased disproportionately in cost. Between 1972 and 1978 the cost of diesel fuel increased 4 times more quickly than inflation while the cost of a transit bus increased at 2½ times the inflation rate.

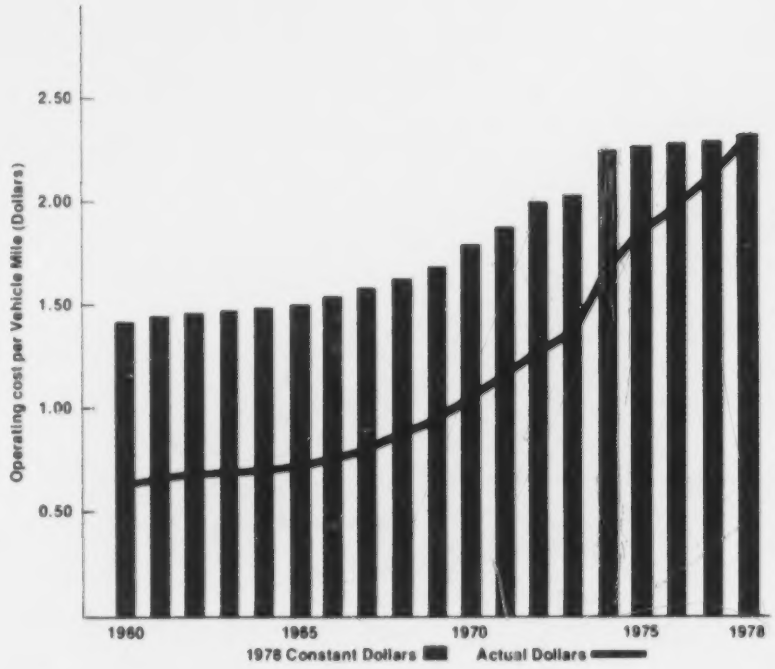


TABLE 12

Trend of Average Fare

CALENDAR YEAR	AVERAGE FARE PER LINKED TRANSIT PASSENGER TRIP[a]					ADULT CASH FARE	
	LIGHT RAIL	HEAVY RAIL	TROLLEY COACH	MOTOR BUS	ALL MODES	HIGH	LOW
1940	7.27¢	5.43¢	5.94¢	6.87¢	6.68¢	10¢	5¢
1945	7.25	5.57	6.79	7.07	6.92	10	5
1950	11.56	9.92	9.56	9.56	10.02	17	5
1955	17.35	14.79	14.79	14.41	14.79	20	5
1960	22.09	16.14	18.12	17.96	17.75	30	7
1965	23.82	16.63	21.83	20.55	19.71	35	10
1966	24.55	18.75	22.13	21.23	20.77	35	10
1967	22.86	20.86	22.52	22.39	22.03	35	10
1968	23.49	21.00	22.86	23.20	22.65	35	10
1969	25.03	21.89	23.28	25.71	24.64	35	10
1970	27.03	23.42	23.84	29.41	27.63	50	10
1971	25.85	24.17	27.59	32.23	29.78	50	15
1972	26.88	27.80	31.55	33.07	31.42	50	15
1973	26.96	30.74	32.06	32.40	31.80	60	Free
1974	27.88	33.91	28.91	31.76	32.20	60	10
1975	29.89	36.34	27.50	31.99	32.97	75	15
1976	29.88	45.56	27.83	32.77	35.71	70	15
1977	30.24	47.51	28.16	34.90	37.69	75	15
P 1978	33.40	46.09	28.12	35.75	38.08	75	15

P = Preliminary

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

(a) Includes transfer charges and zone charges; includes reduced-fare and free-fare rides.

FIGURE V

The Effect of Inflation on Transit Fares

The dollar rate of increase of transit fares over the past 15 years has been less than the average inflation rate of other consumer purchases. In terms of real purchasing power measured in 1978 dollars, the average transit fare decreased from 40.7¢ in 1963 to 38.1¢ in 1978.

This decline in average transit fare reflects a shift from private to public ownership of the transit industry and a change in local government policy toward transit. As long as transit remained a private industry, fares were raised whenever necessary to cover operating expenses. Higher fares led to declining ridership and greater monetary losses in a consistently negative pattern.

As public ownership of transit replaced private ownership, it became possible to defer a portion of operating expense with financial assistance from local, state, and federal governments. This financial assistance made stabilization or reduction of fares possible. These lower fares helped attract more transit riders, strengthening the transit industry and creating financial and social benefits to the local community far in excess of the cost of transit financial assistance.

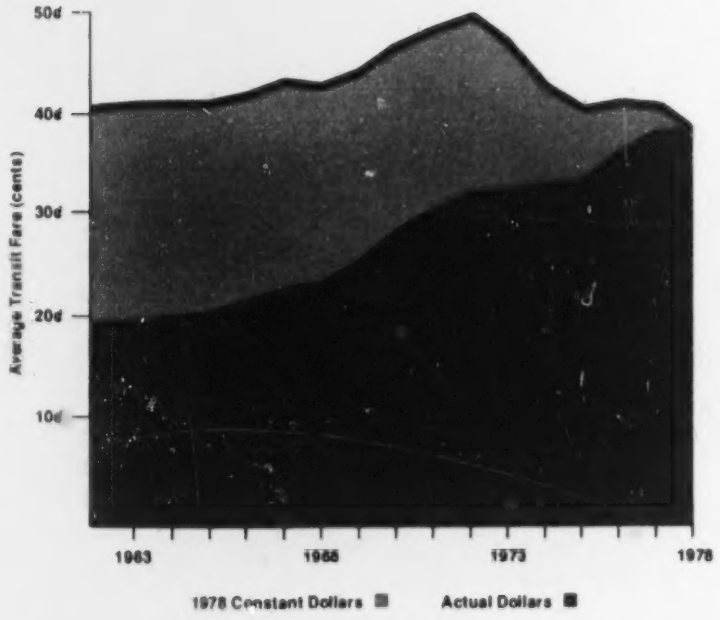


TABLE 13

Trend of Transit Employment, Compensation, and Labor Costs

CALENDAR YEAR	AVERAGE NUMBER OF EMPLOYEES	ANNUAL PAYROLL (THOUSANDS)	AVERAGE EARNINGS PER EMPLOYEE	EMPLOYER PAYROLL TAXES (THOUSANDS)	FRINGE BENEFIT COSTS (THOUSANDS)	TOTAL LABOR COSTS (THOUSANDS)
1940	203,000	$ 360,000	$ 1,773	—	—	—
1945	242,000	632,000	2,612	—	—	—
1950	240,000	835,000	3,479	—	—	—
1955	198,000	864,000	4,364	—	—	—
1960	156,400	857,300	5,481	—	—	—
1965	145,000	963,500	6,645	—	—	—
1966	144,300	994,900	6,895	—	—	—
1967	146,100	1,055,100	7,222	—	—	—
1968	143,590	1,109,500	7,727	—	—	—
1969	140,860	1,183,807	8,404	—	—	—
1970	138,040	1,274,109	9,230	—	—	—
1971	139,120	1,393,148	10,014	—	—	—
1972	138,420	1,455,486	10,515	—	—	—
1973	140,700	1,624,241	11,544	—	—	—
1974	153,100	1,967,100	12,849	—	—	—
1975	159,800	2,236,063	13,993	$ 146,952	$ 466,322	$ 2,849,337
1976	162,950	2,403,683	14,751	162,691	518,993	3,085,367
1977	162,510	2,546,720	15,671	152,389	661,218	3,360,327
P 1978	165,400	2,740,557	16,569	166,808	797,288	3,704,653

P = Preliminary — Data not available

NOTE: In the "Interstate Commerce Commission (ICC) System of Accounts" and in the "American Transit Accountants' (ATA) Association Classification of Accounts," employee compensation in the form of sick leave, paid vacation time, and paid holidays is classified as "payroll." In the "Urban Mass Transportation (UMT) Act, Section 15, Uniform System of Accounts and Records," employee compensation in the form of paid sick leave, paid vacation time, and paid holidays is classified as "fringe benefits." Beginning with the calendar year 1977, as transit systems convert their accounting systems from either ICC accounts or ATA accounts to UMT Act Section 15 accounts, reclassification of these compensation types results in a shift of these labor-related expenses from payroll accounts to fringe benefit accounts.

Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

TABLE 14

Transit Passenger Vehicles Owned and Leased

CALENDAR YEAR	RAILWAY			TROLLEY COACH	MOTOR BUS	TOTAL REVENUE VEHICLES
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL			
1940	26,630	11,032	37,662	2,802	35,000	75,464
1945	26,160	10,217	36,377	3,711	49,670	89,758
1950	13,228	9,758	22,986	6,504	56,820	86,310
1955	5,300	9,232	14,532	6,157	52,400	73,089
1960	2,856	9,010	11,866	3,826	49,600	65,292
1965	1,549	9,115	10,664	1,453	49,600	61,717
1966	1,407	9,273	10,680	1,326	50,130	62,136
1967	1,388	9,257	10,645	1,244	50,180	62,069
1968	1,355	9,390	10,745	1,185	50,000	61,930
1969	1,322	9,343	10,665	1,082	49,600	61,347
1970	1,262	9,338	10,600	1,050	49,700	61,350
1971	1,225	9,325	10,550	1,037	49,150	60,737
1972	1,176	9,423	10,599	1,030	49,075	60,704
1973	1,123	9,387	10,510	794	48,286	59,590
1974	1,068	9,403	10,471	718	48,700	59,889
1975	1,061	9,608	10,712[a]	703	50,811	62,226
1976	963	9,714	10,720[a]	685	52,382	63,787
1977	992	9,639	10,674[a]	645	51,968	63,287
P 1978	944	9,567	10,554[a]	593	52,866	64,013

P = Preliminary

(a) Includes 39 cable cars and 4 inclined plane cars.

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

FIGURE VI

Motor Bus Diesel Fuel Costs

The fastest growing cost for bus transit systems in the last decade has been motor bus fuel. Most transit systems use No. 1-D diesel fuel, a highly refined middle distillate that minimizes air polluting emissions from buses. The cost of No. 1-D diesel fuel has risen 450% in the last nine years, from 12 cents per gallon excluding taxes in 1970 to 65 cents per gallon excluding taxes in the summer of 1979.

This incredible price increase of diesel fuel is five times as great as the Consumer Price Index, which rose only 88% during the same time period. Because fuel costs are rising more quickly than inflation, they are becoming a much larger portion of transit system expenses.

In 1970 diesel fuel costs accounted for 2.5% of transit system budgets for motor bus operations. By the summer of 1979 diesel fuel accounted for 7.7% of the cost of motor bus operations. The rising portion of transit expenditures going to diesel fuel requires transit systems to economize in other areas to help prevent excessive cost increases while continuing to improve transit service to their communities.

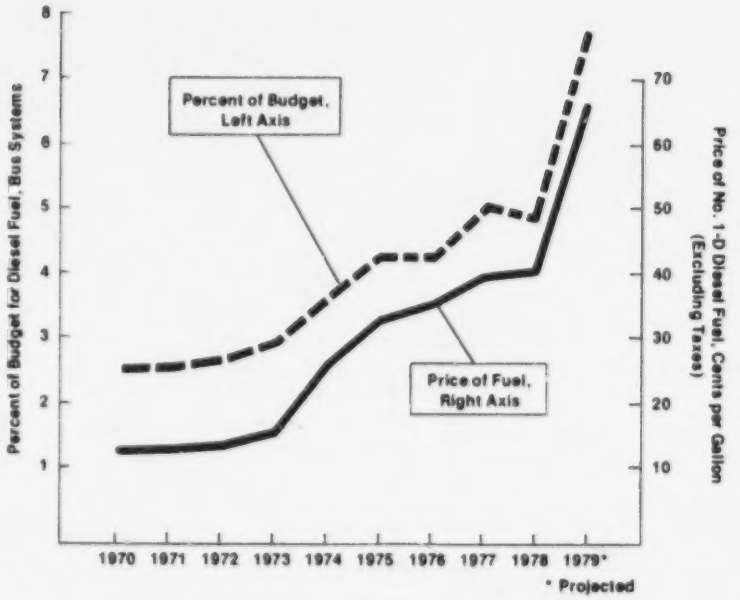


TABLE 15

New Passenger Vehicles Delivered

CALENDAR YEAR	RAILWAY CARS			TROLLEY COACHES	MOTOR BUSES				TOTAL PASSENGER VEHICLES
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL		29 SEATS OR FEWER	30-39 SEATS	40 SEATS OR MORE	TOTAL BUSES	
1940	463	189	652	618	—	—	—	3,984	5,254
1945	332	0	332	161	1,757	1,183	1,501	4,441	4,934
1950	4	199	203	179	205	852	1,611	2,668	3,050
1955	0	288	288	43	8	229	1,861	2,098	2,429
1960	0	416	416	0	0	173	2,633	2,806	3,222
1965	0	580	580	0	6	225	2,769	3,000	3,580
1966	0	179	179	0	36	312	2,752	3,100	3,279
1967	0	85	85	0	32	260	2,208	2,500	2,585
1968	0	384	384	0	63	171	1,994	2,228	2,612
1969	0	650	650	0	65	163	2,002	2,230	2,880
1970	0	308	308	0	77	73	1,274	1,424	1,732
1971	0	250	250	1	95	70	2,349	2,514	2,764
1972	0	360	360	1	124	199	2,581	2,904	3,265
1973	0	238	238	1	182	317	2,701	3,200	3,439
1974	0	92	92	0	345	251	4,222	4,818	4,910
1975	0	127	127	1	419	128	4,714	5,261	5,389
1976	4	472	476	260	395	251	4,099	4,745	5,481
1977	62	506	568	198	549	308	1,580	2,437	3,203
P 1978	35	172	207	0	610	222	2,973	3,805	4,012

P = Preliminary — Data not available

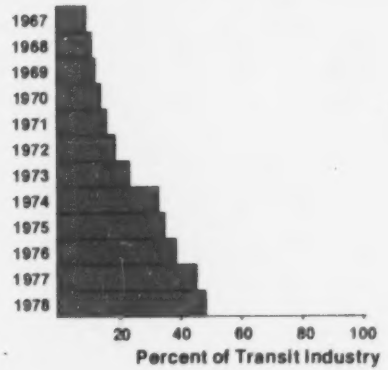
TABLE 16

Publicly Owned Transit as a Portion of the Transit Industry*

CALENDAR YEAR	NUMBER OF TRANSIT SYSTEMS	PERCENT OF INDUSTRY TOTAL	OPERATING REVENUE (MILLIONS)	PERCENT OF INDUSTRY TOTAL
1967	110	10%	$ 930	60%
1968	129	12%	984	63%
1969	145	13%	1,154	71%
1970	159	15%	1,298	76%
1971	177	17%	1,375	79%
1972	203	19%	1,400	81%
1973	246	24%	1,528	85%
1974	308	33%	1,635	86%
1975	333	35%	1,729	86%
1976	375	39%	1,902	88%
1977	455	45%	2,044	90%
P 1978	463	48%	2,145	90%

CALENDAR YEAR	MOTOR BUSES OWNED AND LEASED	PERCENT OF INDUSTRY TOTAL	TOTAL TRANSIT VEHICLES OWNED AND LEASED	PERCENT OF INDUSTRY TOTAL
1967	19,527	39%	30,026	48%
1968	22,700	45%	34,302	55%
1969	27,110	55%	38,590	63%
1970	29,346	59%	40,778	66%
1971	29,982	61%	41,301	68%
1972	30,917	63%	42,499	70%
1973	35,732	74%	47,508	79%
1974	37,368	77%	48,410	81%
1975	40,583	80%	51,964	83%
1976	42,802	82%	54,149	85%
1977	43,422	84%	54,662	86%
P 1978	44,323	84%	55,393	87%

Publicly Owned Transit Systems



Publicly Owned Transit Vehicles

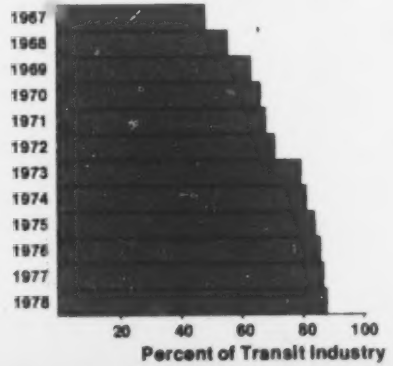


TABLE 16 (continued)

Publicly Owned Transit as a Portion of the Transit Industry

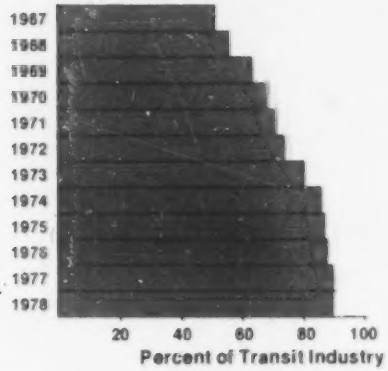
CALENDAR YEAR	VEHICLE MILES OPERATED (MILLIONS)	PERCENT OF INDUSTRY TOTAL	LINKED PASSENGER TRIPS (MILLIONS)	PERCENT OF INDUSTRY TOTAL
1967	1,028	51%	4,101	62%
1968	1,120	56%	4,219	65%
1969	1,239	63%	4,606	73%
1970	1,280	68%	4,567	77%
1971	1,292	70%	4,398	80%
1972	1,282	73%	4,308	82%
1973	1,468	80%	4,606	87%
1974	1,621	85%	5,034	90%
1975	1,706	86%	5,090	90%
1976	1,770	87%	5,162	91%
1977	1,790	89%	5,221	91%
P 1978	1,825	90%	5,456	91%

P = Preliminary.

* Publicly owned transit systems include all transit systems owned by municipalities, counties, regional authorities, states, or other governmental agencies including transit systems operated or managed by private firms under contract to governmental agency owners.

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

Public Systems Vehicle Miles



Public Systems Passenger Trips

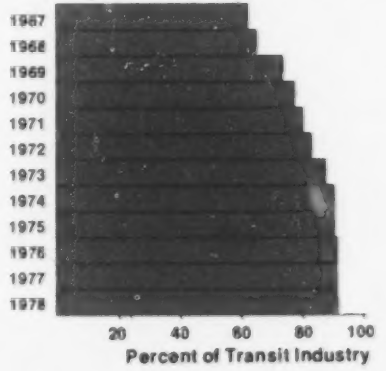


TABLE 17

Trend of Energy Consumption by Transit Passenger Vehicles

CALENDAR YEAR	ELECTRIC POWER CONSUMED (KILOWATT HOURS IN MILLIONS)	FOSSIL FUELS CONSUMED (GALLONS IN THOUSANDS)		
		GASOLINE	DIESEL	PROPANE
1940	6,334	—	—	0
1945	7,033	510,000	11,800	0
1950	5,251	430,000 (a)	98,600	(a)
1955	3,530	246,000	172,600	30,000
1960	2,908	153,600	208,100	38,300
1965	2,584	91,500	248,400	32,700
1966	2,467	76,000	256,000	33,600
1967	2,531	57,800	270,300	33,000
1968	2,586	45,700	274,200	32,200
1969	2,618	40,000	273,800	31,600
1970	2,561	37,200	270,600	31,000
1971	2,556	29,400	256,800	26,500
1972	2,428	19,647	253,250	24,400
1973	2,331	12,333	282,620	15,152
1974	2,630	7,457	316,360	3,142
1975	2,646	5,017	365,060	2,559
1976	2,576	5,203	389,187	960
1977	2,303	8,077	402,842	1,196
P 1978	2,223	9,318	422,017	13

P = Preliminary — Data not available

(a) Propane included with gasoline

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat

TABLE 18

United States Government Capital Grant Approvals for Mass Transportation

FISCAL YEAR (a)	UMT ACT SECTION 3 (b)	UMT ACT SECTION 5 (c)	URBAN SYSTEMS (d)	INTERSTATE TRANSFERS (e)	TOTAL APPROVALS (f)
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
1965	$ 50.7	$ 0.0	$ 0.0	$ 0.0	$ 50.7
1966	106.1	0.0	0.0	0.0	106.1
1967	120.9	0.0	0.0	0.0	120.9
1968	121.8	0.0	0.0	0.0	121.8
1969	148.3	0.0	0.0	0.0	148.3
1970	133.4	0.0	0.0	0.0	133.4
1971	284.8	0.0	0.0	0.0	284.8
1972	510.0	0.0	0.0	0.0	510.9
1973	863.7	0.0	0.0	0.0	863.7
1974	870.3	0.0	34.6	51.0	955.9
1975	1,196.6	9.1	15.7	65.7	1,287.1
1976	1,346.1	32.3	23.3	553.0	1,954.8
1977	1,250.0	39.4	42.0	392.3	1,723.7
1978	1,400.0	50.1	30.4	556.4	2,036.9

* The U.S. Government term "Mass Transportation" means "transportation by bus, or rail or other conveyance, either publicly or privately owned, which provides to the public general or special service (but not including school buses or charter or sightseeing service) on a regular and continuing basis." (49 USC 1608)

(a) Fiscal Years 1965 through 1975 began July 1 and ended June 30; Fiscal Year 1976 began July 1, 1975 and ended September 30, 1976; Fiscal Years 1977 and 1978 began October 1 and ended September 30.

(b) Urban Mass Transportation Act of 1964 as amended, Section 3 (49 USC 1602)

(c) Urban Mass Transportation Act of 1964 as amended, Section 5 (49 USC 1604)

(d) Federal-Aid Highway Act of 1973 (23 USC 142)

(e) Federal-Aid Highway Act of 1973 (23 USC 103)

(f) Excludes direct Congressional authorizations.

NOTE: Table 18 includes United States Government data reported on a fiscal-year basis. Tables 1 through 17 of the *Transit Fact Book* include American Public Transit Association data reported on a calendar-year basis. Therefore, Table 18 is not directly comparable to Tables 1 through 17.

Source: U.S. Department of Transportation, Urban Mass Transportation Administration.

TABLE 19

United States Government Operating Grant Approvals for Mass Transportation

FISCAL YEAR (a)	UMT ACT SECTION 5 GRANT APPROVALS FOR OPERATING ASSISTANCE (b)	
	NUMBER OF GRANTS	TOTAL APPROVALS (MILLIONS)
1975	100	$ 142.5
1976	211	411.8
1977	386	571.8
1978	398	685.3

* The U.S. Government term "Mass Transportation" means "transportation by bus, or rail or other conveyance, either publicly or privately owned, which provides to the public general or special service (but not including school buses or charter or sightseeing service) on a regular and continuing basis." (49 USC 1608)

(a) Fiscal Year 1975 began July 1 and ended June 30, 1975; Fiscal Year 1976 began July 1, 1975 and ended September 30, 1976; Fiscal Years 1977 and 1978 began October 1 and ended September 30.

(b) Urban Mass Transportation Act of 1964, as amended, Section 5 (49 USC 1604).

NOTE: Table 19 includes United States Government data reported on a fiscal-year basis. Tables 1 through 17 of the ***Transit Fact Book*** include American Public Transit Association data reported on a calendar-year basis. Therefore, Table 19 is not directly comparable to Tables 1 through 17.

Source: U.S. Department of Transportation, Urban Mass Transportation Administration.

TABLE 20

Trend of Commuter Railroad Operations

CALENDAR YEAR	NUMBER OF SYSTEMS	OPERATING REVENUE	OPERATING EXPENSE	LINKED PASSENGER TRIPS	COMMUTERS RAIL CARS OWNED AND LEASED	VEHICLE MILES OPERATED
		(MILLIONS)	(MILLIONS)	(MILLIONS)		(MILLIONS)
1973	15	$ 250	$ 413	239	—	—
1974	15	263	495	254	—	—
1975	15	283	571	260	—	—
1976	15	334	657	260	4,438	—
1977	15	347	671	265	4,340	160
P 1978	17	370	778	267	4,864	159

P = Preliminary

NOTE: Commuter railroad financial data and statistical data are not included in transit industry summary data on Table 1 through Table 17.

Q&A: Transit Issues and Answers

SECTION B

Q & A: Transit Issues and Answers

The Scope of the Transit Industry

What is the role of transit in America's transportation system?

Transit is an essential public service in the day-to-day life of metropolitan America. It is the most efficient and economical method of moving large numbers of people in often congested urban areas. In doing so transit uses less energy than other modes of transportation, produces less pollution, and reduces traffic congestion. In addition, transit is often the only means of urban transportation available to many urban residents.

Public service, however, is the essential role of transit. Many benefits of transit accrue to the urban community as a whole as well as to specific individuals. Transit is a public service which returns benefits to the community in proportion to the community support provided.

Transit provides both a personal travel option and transportation security. Transit provides the option of a relaxed trip to work for an automobile driver tired of fighting traffic. Transit provides a secure alternative for the automobile driver whose auto is being repaired or is stuck in a snow drift, and for many urban residents, transit is singularly depended upon for mobility.

Benefits of Public Transit

- Reliable Transportation
- Economical Transportation
- Mobility for Nondrivers
- Reduced Air Pollution
- Reduced Energy Consumption
- Concentrated Urban Activities
- Conservation of Urban Space
- Stimulated Economic Development

Cities which take advantage of these community benefits are able to conserve urban space by building highways for average conditions rather than the peak hour crush. Transit service encourages a more efficient concentration of urban activities in downtowns and satellite areas than would be possible with automobile-oriented transportation alone. This concentrated activity promotes economic development and keeps badly needed tax paying business and commercial establishments in the central city.

Transit can be used as an effective tool in planning the development of urban areas. By providing improved access to specific locations in an urban area, transit can help concentrate or relocate growth in conformance with areawide development goals.

Transit is a service to urban residents that places emphasis on people. Among the transportation options available to American cities, transit provides a service consistent with visions of what a city should be. America needs cities that offer a variety of services, employment, entertainment, and residential choices. Transit helps make cities in which travel is efficient, inexpensive, and pleasant so that residents may take advantage of all the amenities that distinguish urban living.

Transit systems operate a wide variety of passenger vehicle types. Pictured here are one of the largest and one of the smallest U.S. transit vehicles. This Hop-a-Bus (above), operated in downtown loop service by the Dallas Transit System, is 21 feet long and carries 19 passengers whereas the Golden Gate Transit ferry boat Marin (left) is 165 feet long and carries 750 passengers.

What types of service are operated by the transit industry?

The transit industry offers a variety of mass transportation services from the familiar fixed-route bus and rail lines to unique special services which meet specialized local requirements.

Special transit services can be adopted to meet unusual urban transportation needs. Chartered buses and rail cars are used to move groups of people between specific locations in urban areas for school field trips, convention tours, and similar special occasions.

Loop and shuttle buses provide frequent trips for people going short distances in congested downtown areas and other major activity centers.

Many transit systems meet the special transportation needs of handicapped persons with demand-responsive buses which can pick people up at their homes and take them directly to jobs or other destinations. Special demand-responsive service is also provided by some transit systems in low density areas where it more efficiently meets community needs than fixed-route transit service.

Fixed-route transit service is offered by several types of transit vehicles. Specific transit services identified by vehicle type are called modes. Motor bus, heavy rail, light rail, and trolley coach are the transit modes familiar to most Americans. Other modes of transit service are commuter railroad, automated guideway transit, urban ferry boat, cable car, inclined plane, and aerial tramway. Each of these modes is described in "Profile of Transit Services in 1978" beginning on Page 65 of the *Transit Fact Book*.

How large is the transit industry?

The 1,003 transit systems in the United States provide service to large cities, small urban, and rural areas throughout the United States. Over 75% of America's population has access to fixed route transit service. Demand-responsive and other types of special service transit operations provide mobility for many other Americans.

With expenditures of over 4.5 billion dollars in 1978, the transit industry is a major employer throughout the United States. The transit industry's 165,000 employees transported nearly 8 billion passengers to their jobs, to stores, to schools, and to recreational facilities. U.S. transit systems operate 69,000 revenue vehicles, ranging in size from 18-foot long buses used for special handicapped person transit service to 380-foot long ferry boats carrying 2,500 passengers on a single trip.

Passengers Transported by Common Carriers, 1978

Carrier	Millions of Passengers
Transit	7,936
Intercity Bus	335
Intercity Rail	79
Domestic Aircraft	257

Transit carried 12 times as many passengers as all types of intercity common-carriers combined. While transit carried 7,936 million passengers in 1978, intercity buses carried 335 million passengers, intercity railroads carried 79 million passengers, and domestic aircraft carried 257 million passengers.

What is the best mode of transit service?

There is not, of course, any best mode of transit service to meet all the requirements of any city. Each transit mode is suited to particular conditions of population density, city size, environmental characteristics, demand for transit service, and economic constraints.

America's largest cities operate several modes of transit service to meet their varied needs. In the New York area, for example, a transit rider can choose from bus, heavy rail, light rail, commuter railroad, ferry boat, and

Transit Mode Suitability Criteria
Determined by Regional Plan Association

Transit Vehicle Mode	Minimum Downtown Size, Square Feet of Contiguous Nonresidential Floor Space (Millions)	Minimum Residential Density, Dwelling Units per Acre
Local Bus	2.5	4 to 15[a]
Express Bus	7	3 to 15[a]
Light Rail	21	9
Heavy Rail	50	12
Commuter Rail	70	1 to 2[a]

(a) Varies with type of access and frequency of service.

Source: Regional Plan Association, ***Where Transit Works: Urban Densities for Public Transportation***, New York, 1976. Copyrighted material used with permission.

Note: The American Public Transit Association neither advocates nor endorses these criteria for selecting any specific transit vehicle mode.

This multi-modal transfer facility serves over 54,000 persons a day. Passengers can make quick transfers from 30 different bus routes to high speed trains on which they complete their trips from Northeast New Jersey to New York City. Transit passengers riding coordinated buses and trains benefit from high speed rail travel for the main portion of their trip while still having the convenience of a corner bus for the final portion of their journey.

aerial tramway service depending upon his destination. Each of the nine largest U.S. urbanized areas is served by at least two transit modes with the seven modes operated in the San Francisco-Oakland urbanized area representing the greatest variety of transit vehicle types. An additional 14 smaller urbanized areas are served by at least two transit vehicle modes.

Each transit mode is best used when coordinated with other transit services and the non-transit passenger transportation system in an urban area. Rail transit, for example, is used most efficiently when its service is carefully coordinated with a feeder bus network. Buses circulate through the neighborhoods adjoining rapid transit stations, transporting passengers to the train connection and returning them home later in the day. Although the traveler may live miles from the rail station, rail access is as close as the nearest corner bus stop. Today, rail system designers make special efforts to assure the ease and convenience of bus/rail transfers.

Transit, Energy, and the Environment

Does transit reduce energy consumption?

Transit is an important mechanism in reducing the amount of energy used for urban passenger transportation. Transit provides its riders with a high level of mobility while consuming relatively small quantities of petroleum. Electrically powered transit modes do not require petroleum at all. In 1978, transit used only 28,500 barrels of petroleum a day for propulsion fuel; 15 one hundredths of one percent of total U.S. demand for refined petroleum products. Taken by automobile, these trips would have used 130,000 barrels of petroleum fuel daily, over four times the fuel used by transit.

The majority of urban passenger travel now takes place in individual gasoline powered automobiles, which are relatively inefficient compared to all transit modes. Cities with large established transit systems show low auto fuel usage compared to cities with smaller transit systems. A licensed driver in Chicago, a city with extensive rail and bus service, purchases 6.8 gallons of gasoline per week. In Washington, D.C., where rail service has only been in operation since 1976, the average purchase is 8.2 gallons per week and in Los Angeles and Houston, cities where transit has been small but is now growing rapidly, the average gasoline purchase per driver is 14.0 and 16.2 gallons per week, respectively. As transit systems increase in capacity and begin to affect the way cities grow, there will be fewer cities where there is a high demand for gasoline.

During peak periods when crush loads are experienced, transit buses are up to 15 times more energy efficient than automobiles, achieving 280 passenger miles per gallon of fuel compared to the 19 passenger miles per gallon achieved by the average commuter automobile. A modern heavy rail car capable of carrying over 250 passengers at a maximum load is the most fuel efficient form of urban transportation. Under these fully loaded conditions a heavy rail car is 53 times more fuel efficient than an average commuter automobile.

Every individual who uses transit accomplishes significant energy savings. W. P. Goss and J. G. McGowan studied the energy use of New York commuters in ***Energy Requirements for Passenger Ground Transportation Systems.*** They found that a commuter going 35 miles from Long Island to

Propulsion Energy Required to Move 200 Commuters 10 Miles in Line-Haul Service

Type of Vehicle	Passengers Per Vehicle	Number of of Vehicles	Btu* per Passenger Mile	Total Btu*
Heavy Rail Car	200	1	103	205,060
Heavy Rail Car	100	2	205	410,120
Transit Bus	67	3	517	1,040,250
Transit Bus	40	5	867	1,733,750
Vanpool	10	20	1,389	2,777,800
Vanpool	6	33	2,314	4,583,370
Carpool	4	50	2,224	4,484,000
Average Automobile	1.3	154	6,898	13,810,720

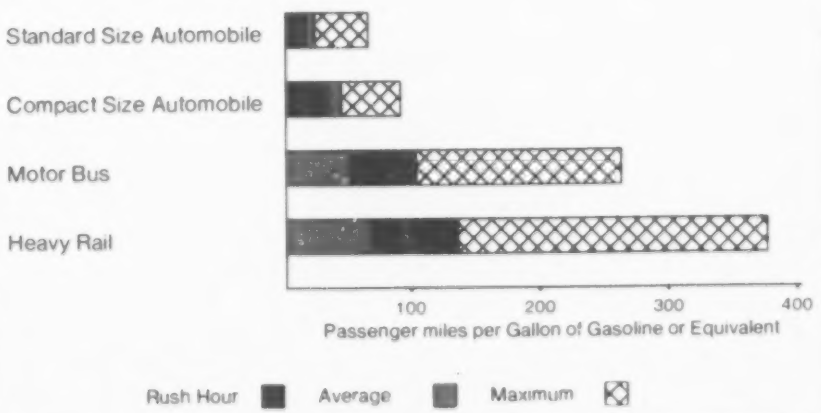
* British Thermal Units

Manhattan uses as much energy by driving an automobile in four years as a transit rider uses in his entire 40-year working life. With an automobile using 1,233 gallons of fuel per year in this example, a transit user can save almost 45,000 gallons of fuel in his work life.

What is transit's role in America's battle to save energy?

Each person who switched from an automobile to transit in 1978 saved 0.15 gallons of gasoline per trip. With millions more persons using transit each year, transit use has the potential of causing large direct petroleum fuel savings. This is the most obvious role of transit in America's battle to save energy, but represents only a small portion of transit's energy saving potential.

Energy Use by Urban Transportation Modes



Transit can also help to channel and concentrate urban development by establishing corridors and zones of rapid high capacity transportation. Concentrated growth reduces the amount people and goods travel, thereby reducing transportation energy demand. Transit helps reduce traffic congestion allowing other modes of transportation to operate more efficiently. Transit reduces the size of highways and parking facilities needed in urban areas.

Transit's immediate benefit to many Americans is as an alternative way to get to work or go shopping when ever more frequent gasoline shortages make it impossible for everyone to drive. Today's transit systems will provide the basis of the truly mass public transportation that will be needed when rising gasoline prices make driving a luxury or limited gasoline supplies make driving a privilege.

Petroleum Fuel Saved by Transit Riders*

Year	Barrels of Petroleum Fuel
1960	46,111,000
1961	43,961,000
1962	43,121,000
1963	41,616,000
1964	41,338,000
1965	40,934,000
1966	39,966,000
1967	40,145,000
1968	39,663,000
1969	38,804,000
1970	36,508,000
1971	34,129,000
1972	32,758,000
1973	33,040,000
1974	34,246,000
1975	34,254,000
1976	34,574,000
1977	35,463,000
1978	37,165,000

* Includes Commuter Railroad

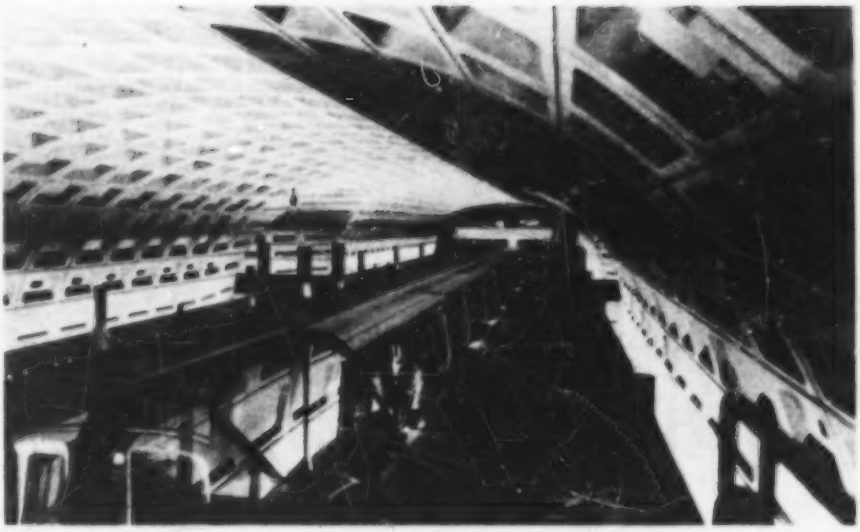
How much energy is used to construct a rail transit system?

Fixed guideway transit facilities such as heavy rail and light rail use surprisingly small amounts of energy in their construction compared to alternative highway construction.

The San Francisco Bay Area Rapid Transit District (BART) required 38.9 trillion British thermal units (BTUs) of energy for construction of the basic BART system. Construction of a highway system as an alternative to BART would have required 79.6 trillion BTUs of construction energy, over twice the construction energy used by BART.

The amount of energy used in rail transit construction varies with the type of right-of-way (subway, at grade, or elevated) constructed. The BART system is a combination of all three right-of-way types.

National studies of energy use per dollar of investment in rail transit versus highway construction have supported BART's conclusion. B. M. Hannon and R. G. Stein in ***Energy Use for Building Construction*** determined that new transit construction consumes 62,447 BTUs of energy per dollar compared to 123,745 BTUs per dollar of highway construction (using 1967 dollars). Hannon and Rodger Bezdek reached a similar conclusion in "Energy, Manpower, and the Highway Trust Fund," ***Science*** magazine, Volume 185, where they reported that "railroad and mass transit construction" required 43,100 BTUs per dollar investment (1963 dollars) compared to 112,200 BTUs per dollar required for "highway construction."



The most energy efficient form of urban transportation is heavy rail transit. This Washington Metropolitan Area Transit Authority train uses much less energy to carry passengers than competitive modes and uses virtually no petroleum since its electrical energy comes from power plants using non-petroleum fuels.

What other effects does transit's fuel efficiency have?

Conserving petroleum fuels by using transit has all the benefits of any fuel conservation program. The petroleum fuel saved can be used for other purposes such as raw materials for chemicals, plastics, and other petroleum based products. Transit's fuel efficiency also leads to a dramatic reduction in urban air pollution.

Because transit vehicles use less fuel per passenger mile than automobiles, transit vehicles create fewer air polluting emissions per passenger

Air Pollutants Avoided By Use of Transit*

	Tons of Air Pollutants			
Year	Hydrocarbons	Carbon Monoxide	Nitrogen Oxides	Particulate Matter
1970	14,800	145,400	35,200	4,900
1971	13,800	135,200	32,800	4,600
1972	13,200	129,400	31,400	4,400
1973	13,200	129,100	31,200	4,400
1974	13,600	134,200	32,300	4,500
1975	13,500	133,700	32,000	4,500
1976	13,500	133,400	31,900	4,500
1977	13,500	133,700	31,900	4,500
1978	14,200	140,700	33,600	4,800

* Excludes Commuter Railroad

mile compared to automobiles.

Richard Thomas Shehan in "Energy Profile: Auto vs. Transit" showed the overall toxicity of automobile emissions to be over eight times that of either bus transit or rail transit.

How much does transit reduce air pollution?

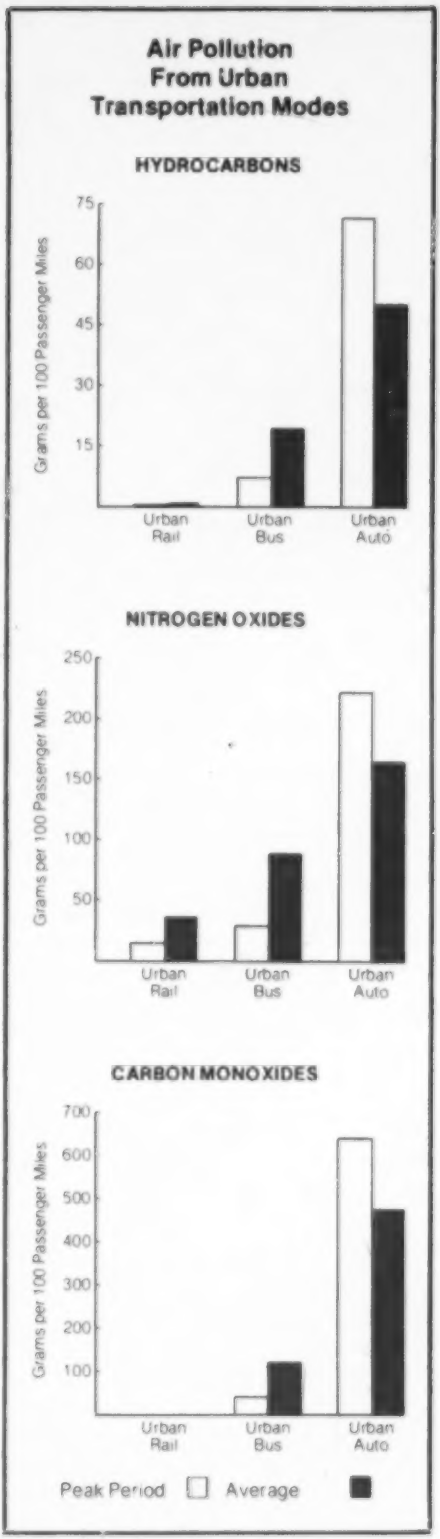
Because of inherent operating efficiency, transit vehicles generate far fewer air polluting emissions per passenger than automobiles.

Bar graphs presented to the right show that transit vehicles produce fewer hydrocarbons and nitrogen oxides and less carbon monoxide than automobiles providing an equal number of passenger miles. Transit is especially conservative during rush hours when air pollution is normally at its worst.

Transit systems make significant efforts to reduce transit vehicle emissions. Most motor bus transit systems use No. 1-D diesel fuel, a more refined grade of fuel that produces fewer emissions than regular grades of diesel fuel. Rail transit also offers the advantage of power generation plants located away from central city areas, thus diffusing pollutants associated with generation of electricity.

If all transit trips over the past 10 years had been made by automobiles, America's cities would have been polluted by an additional 145,000 tons of hydrocarbons; 1,350,000 tons of carbon monoxide; 330,000 tons of nitrogen oxides and 45,000 tons of particulate matter.

Preparation of comparative air polluting emission charts involved use of copyrighted materials which appeared in "Energy Profile: Auto vs. Transit" by Richard Thomas Shehan (*Mass Transit*, November, 1976); used with permission.



The Cost and Financing of Transit

Who owns the transit industry?

The transit industry is primarily owned by the American public through their city, county, regional, and state governments. Nearly half the transit systems in the United States, carrying 91% of all transit passengers, are owned by public agencies.

Public ownership of transit is a recent development. While the first publicly-owned transit system in the United States began operation in 1904, by World War II only 35 street railways and motor bus systems—carrying 7% of America's transit riders—were publicly owned. The shift from private to public ownership accelerated in the post-war years with over 50% of transit riders carried by publicly owned transit systems in 1967 and 91% riding publicly owned transit by 1978.

Public ownership is the result of many factors which make private ownership of transit systems unprofitable. As with most private utilities, private transit systems are regulated by local or state government. Regulatory agencies often prohibit fare increases or service cutbacks by private operators. Since

Nearly half of all transit systems carrying over 90 percent of all transit passengers are owned by public agencies. The two buses pictured here are owned and operated by special government districts, the Regional Transportation District in Denver, Colorado, (above) and the Transit Authority of Northern Kentucky in Newport, Kentucky (left). Besides special districts, transit systems are owned and operated by city, county, and state governments.

TABLE 21

Trend of Local Operations by Class I Intercity Bus Carriers*

CALENDAR YEAR	INTERCITY MOTOR BUS CARRIER LOCAL AND SUBURBAN SERVICE [a]			
	PASSENGER REVENUE	PERCENT OF ALL CARRIER REVENUE [b]	REVENUE PASSENGERS CARRIED	VEHICLE MILES
	(MILLIONS)		(MILLIONS)	(MILLIONS)
1965	—	—	29	23.9
1966	$12.5	2.0%	25	20.9
1967	14.2	2.1%	27	22.1
1968	15.0	2.2%	30	22.8
1969	13.1	1.9%	22	17.4
1970	13.3	1.8%	21	16.9
1971	12.6	1.7%	19	16.2
1972	11.7	1.5%	16	15.2
1973	13.8	1.7%	17	16.9
1974	14.0	1.5%	17	16.7
1975	11.7	1.2%	14	13.0
1976	12.0	1.2%	14	11.9
1977	11.1	1.1%	12	10.6
1978	11.8	1.1%	13	9.6

* Includes Class I Intercity Motor Carriers only. Class I Motor Carriers include all intercity bus companies with gross revenues over $200,000 from 1965 through 1968, with gross revenues over $1,000,000 from 1969 through 1976, and with gross revenues over $3,000,000 beginning in 1977.

(a) "Intercity Motor Bus Carrier Local and Suburban Service" is defined by the Interstate Commerce Commission as "transportation within a city or its contiguous suburbs."

(b) Passenger Revenue from Local and Suburban Service divided by all Class I Intercity Motor Carrier Operating Revenue.

NOTE: Intercity Bus Local and Suburban financial data and statistical data are not included in transit industry summary data on Table 1 through Table 17.

Source: American Bus Association

costs, affected by inflation, continue to increase, the transit operation becomes unprofitable. Declining transit ridership from 1946 to 1972 also reduced the economies of scale experienced by private operators and often left large investments in vehicles and physical plants underutilized. Faced with the possibility of unprofitable private transit systems ceasing operations and the incentive of federal government financial assistance, many municipalities adopted public ownership of their transit systems.

Transit systems are publicly owned because many of transit's benefits accrue to the public rather than to the transit rider. Privately owned transit systems are restricted to revenues from fares paid by transit riders. Publicly owned transit systems are supported by both the fares of the transit rider and tax revenues from both transit-riders and nontransit riders who benefit from transit service.

Why does transit receive financial assistance?

Most items which people buy are for their own benefit. A person who buys a radio, a house, or a dozen eggs expects to receive the benefits of listening to the radio, living in the house, or eating the eggs. These are called "private goods" because the goods benefit the person who pays for them. There are other types of goods which provide benefits to the general public as well as the person who uses them. These are called "public goods" and include public services such as parks, streets, police protection, fire protection, and transit service.

Transit receives financial assistance from local, state, and federal governments because transit is a public service that benefits everyone, not only the transit rider. Like any public service, transit costs more than the individual rider can normally afford to pay. Individual transit riders are charged fares to pay a portion of the cost of transit service, and governments provide transit systems with financial assistance to pay for benefits from transit that accrue to the general public.

The public benefits of transit are extensive. Transit helps reduce traffic congestion so that cities do not need to build additional streets, highways, and parking garages. Transit allows persons who do not own automobiles access to jobs they could not otherwise reach, thus easing unemployment. Transit promotes urban concentration which reduces the size and cost of sewer and utility installations. Transit helps reduce cleaning and medical costs by reducing air pollution. Transit saves energy so that limited petroleum recourses are available for other uses such as home heating and agriculture.

Financial assistance for transit is not a free ride for the transit user; rather, transit fares help support a necessary public service that benefits the entire urban community.

How much financial assistance does transit receive?

In 1978 the transit industry received over 2 billion dollars of financial assistance for operations and over 2.5 billion dollars of financial assistance for capital. While the largest portion of operating assistance came from local and state governments, the majority of capital assistance came from the federal

government which provides 80% of capital funding for capital purchases by transit systems.

Different governments obtain funds used for financial assistance from a variety of sources. Federal assistance is from general revenues because the federal government does not have a tax source dedicated to transit. State and local governments, however, have many different taxes dedicated to transit usage. Besides general revenues, local and state assistance comes from earnings taxes, property taxes, gasoline taxes, parking taxes, sales taxes, bridge tolls, lottery proceeds, cigarette taxes, and many other types of taxes or fees.

Although transit receives a large amount of financial assistance, the amount transit receives compared to total government expenditures on all forms of transportation is not large. The 3 billion dollars transit received in 1978 represented 18% of all federal government financial assistance to transportation. Since 1946, transit has received 13.3 billion dollars, 8% of the 173.3 billion dollars financial assistance provided by the federal government to transportation.

Federal Government Financial Aid to Transportation

Mode	Financial Aid 1946-1978 (Billions)	Financial Aid 1978 (Billions)
Highway	$102.8	$7.2
Air	30.6	2.9
Waterborne	20.7	1.3
Mass Transit	13.3	~~2.0~~ 3.0
Railroad	5.9	1.7

Source: United States Conference of Mayors, *Federal Aid to Transportation, An Analysis of Government Obligations by Mode*, Washington, D.C., May, 1979. Copyrighted material used with permission.

How much financial assistance should transit receive?

There is no magic number of dollars that would create perfect transit systems for America's cities. Transit is a means of meeting urban transportation needs. As those needs change the money required to satisfy them changes.

Urban passenger transportation needs are changing. Transportation using less energy is needed to combat petroleum shortages. Transportation producing fewer emissions is needed to stop air pollution. Transportation that can be used to plan growth and development is needed to reduce wasteful urban sprawl. Transit is part of the solution to each of these problems. The financial assistance that transit should receive depends upon how extensively governments wish to fight energy waste, pollution, and chaotic growth.

Transit also needs assistance to rebuild a capital plant that was left to deteriorate since the 1930s when governments began enacting policies that favored other means of transportation. Many transit systems still use maintenance facilities built by street railways at the end of the 19th century

when private utilities were allowed to legally subsidize transit operations.

A minimum transit ridership increase of 100% over the next decade is necessary to begin to accomplish these goals. To purchase buses, rail cars, maintenance facilities, and other capital equipment to carry these new riders, the government has established that transit will need approximately $50 billion in the next decade. Financial assistance for operations will also need to be increased because of growth and increased costs.

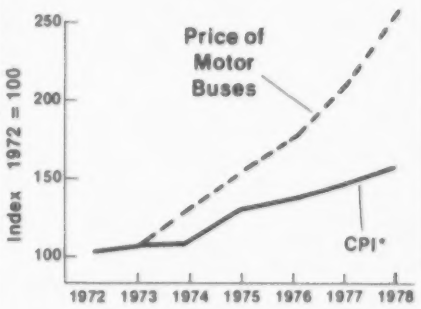
Is transit affected by inflation?

Both the revenues and expenses of transit are negatively affected by inflation. Transit expenses increase more rapidly than inflation while transit revenues increase at a slower rate than general inflation. A vivid example of the increasing cost of transit capital equipment are motor buses, which increased 156% in cost from $40,500 in 1972 to $103,500 in 1978. During the same time period the United States Department of Labor Consumer Price Index rose only 56%. Transit faces ever increasing costs for consumables also. Between 1972 and 1978 the cost of diesel fuel for buses rose 231%, over 4 times the inflation rate of consumer prices.

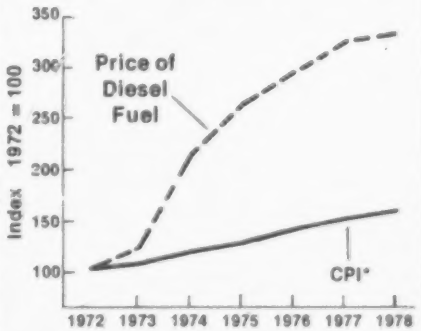
Unlike many businesses, transit is not able to pass increased costs through to its customers. Transit fares are established by government bodies that must consider the overall welfare of their community, not just the balance sheet of their transit system. In many cases these governing bodies find community welfare to be maximized when transit fares are kept low in order to encourage higher transit ridership. When this policy is adopted, transit fares do not rise quickly enough to keep pace with inflation.

Inflation Affects Transit

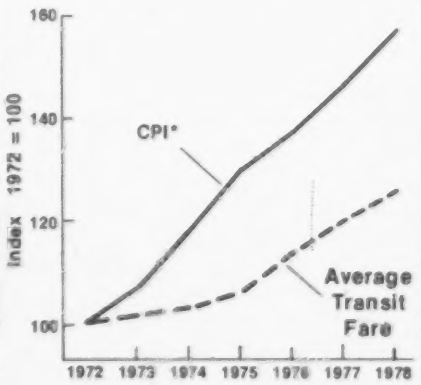
CAPITAL COSTS RISE SHARPLY



OPERATING COSTS RISE SHARPLY



OPERATING REVENUES RISE SLOWLY



* CPI = United States Department of Labor Consumer Price Index

Transit's Effect on Cities

What is the cost of not providing transit service?

Very simply stated, the cost of not providing transit service is the higher cost of providing alternative means of urban transportation plus the loss of mobility to urban residents who have no other means of transportation.

The most apparent cost of not investing in transit is a total alteration of the urban landscape. Without transit, cities will develop inefficiently with lower intensity land use for all purposes in all parts of the city. While the central business district of a city with a high level of transit use might require 40 per-

Urban Transportation System Resource Use

Energy Consumption

Transportation System	Millions of BUT's per 1,000 Passenger Miles
Taxicab	15.0
Automobile	6.0
Light Rail	4.6
Commuter Rail	3.3
Heavy Rail	3.0
Motor Bus	2.7

Material Consumption for Vehicles

Transportation System	Pounds per 1,000 Passenger Miles
Taxicab	39.8
Automobile	23.1
Motor Bus	6.2
Light Rail	4.9
Heavy Rail	1.9
Commuter Rail	1.5

Space Consumed by Roadway

Transportation System	Acres of Roadway per 1,000 Passenger Miles per Day
Taxicab	1.70
Automobile	0.95
Light Rail	0.70
Commuter Rail	0.30
Motor Bus	0.14
Heavy Rail	0.04

Source: Based on exhibits from Regional Plan Association, *Where Transit Works: Urban Densities for Public Transportation*, New York, 1976. Copyrighted material used with permission.

Note: For assumptions used by authors, refer to source document. Based on alternative assumptions, other research has resulted in differing amounts and rankings of resources used.

cent or less of its area for streets and parking, the land devoted to streets and parking in central business districts in low transit use cities might be as high as 60 percent. The table on page 59 shows that a much smaller amount of land is required for transit than for alternative modes of transportation.

Investments for transit in resources other than land show a consistent pattern when compared to other transportation alternatives. Transit requires a smaller investment in materials for vehicles, uses less energy for operation, and uses less energy during construction.

Lack of investment in transit would severly restrict the mobility of millions of urban Americans. The U.S. Department of Transportation found in the 1972 Nationwide Personal Transportation Study that 21% of urban households do not own automobiles. Households among the lowest income groups show the lowest percentage of automobile ownership. Without transit, the employment alternatives and accessibility to amenities of these households would be reduced.

How does transit affect the way a city looks?

The image of a city with intensive transit service is an image of concentration. Tall modern office buildings in the city center, large downtown shopping areas, pleasant apartments, and convenient residential neighborhoods. It is an image of a busy, crowded city but a city with structure and personal accessibility.

The population density of a city is certainly affected by the type and quality of the city's transit service. Of America's 20 largest cities, six of seven with heavy rail systems have residential densities of over 10,000 persons per square mile. Of the 13 remaining cities without heavy rail systems, only one has as high a residential density.

Cities with extensive bus transit service share many of the visual characteristics of heavy rail cities. Fewer expressways cut through residential neighborhoods because fewer commuters take their autos to jobs in the central city. The Chicago Transit Authority estimates that 100 miles of additional six-lane expressways would be needed in Chicago alone if transit service were ended. Fewer commuters using autos means that fewer parking places are required in congested urban areas. Autos brought to the Loop area of Chicago by those 100 extra miles of freeway would need six times the parking area now available in the Loop.

Cities with transit service are also cleaner. The lower levels of emissions from transit compared to other transportation result in lower levels of air pollution. Not only is the air cleaner, but buildings, cars—anything exposed to the dirt and corrosive effects of air pollution—are also cleaner.

The greatest effects of transit, however, are not in what you see in the city, but the effects you cannot see. Fewer highways and parking places around activity centers make more high revenue producing land available, increasing the community tax base. Better access to job opportunities helps increase employment; fewer people will need public welfare assistance, employers will be able to find more qualified employees, and many citizens will be able to take jobs offering more personal satisfaction.

The concentration resulting from transit means that both transit and non-transit trips will be shorter. Shorter trips use less energy so that energy demand drops. Concentration also reduces utility costs. The cost of utility and road installation is estimated at over $5,000 less per household in a medium density city compared to a sprawling, unplanned community.

New rail transit construction is frequently a trigger to more intensive land use around transit stations. These two photographs show the effect of a transit system's own construction program: The Port Authority Trans-Hudson Corporation Journal Square Transportation Center in Jersey City, New Jersey. The upper photo, taken before construction of the Center, shows the congested and deteriorating Jersey City downtown area. The new transportation center, dedicated in 1975, (right) is expected to help rejuvenate the downtown area by adding employment and shopping facilities to the area and by providing loading facilities for the 30 bus routes that feed passengers to the station.

Will investments in rail transit create more jobs than comparable investment in urban freeways?

Input-output data analysis in "Energy, Manpower, and the Highway Trust Fund," *Science* magazine, Volume 185, indicates that fixed guideway mass transit construction creates greater employment than an equal investment in highway construction. The study by Roger Bezdek and Bruce Hannon found that a $100,000 (1975 Dollars) investment in "railroad and mass transit construction" created 8.4 annual jobs while an equal investment in highway construction created only 8.1 annual jobs. Based on national averages, these figures do not show the major differential in job creation between transit and

highways that might be expected in some areas nor do they include long-range job impacts following the completion of construction.

A more detailed study of the employment effects of a specific transportation project was made by Michael Gerrard in ***How Public Works Projects Affect Employment: A Case Study of Westway and Its Transit Alternatives.*** Gerrard analyzed the employment effect of three alternative investments of $1.16 billion for (1) a 4.2-mile freeway on the lower west side of Manhattan known as the "Westway" to replace the old West Side Highway, or (2) an arterial road to replace the West Side Highway plus construction of new heavy rail transit, or (3) an arterial to replace the West Side Highway plus rehabilitation of existing heavy rail transit.

The analysis of Westway construction proposals demonstrated the job creation ability of transit construction. While construction of the Westway would create only 78,272 person years of employment, the new heavy rail transit construction alternative would create 96,714 person years of employment, and the heavy rail rehabilitation alternative would create 103,209 person years of employment. Long-term permanent job creation following construction is even more pronounced in favor of transit. New heavy rail reconstruction would create 3,100 permanent jobs and heavy rail rehabilitation would create 1,500 permanent jobs while construction of the Westway would create 600 permanent jobs.

Construction Alternatives and Anticipated Employment: Westway Highway Construction versus Rapid Transit Construction or Rehabilitation in New York City

Jobs Resulting from Construction:	Total Person Years of Employment
Alternative A: Westway Interstate Highway Construction	78,272
Alternative B: New Heavy Rail Rapid Transit Construction	96,714
Alternative C: Existing Heavy Rail Rapid Transit Rehabilitation	103,209
Permanent Jobs after Construction:	**Annual Person Years of Employment**
Alternative A: Westway Interstate Highway Operation	600
Alternative B: New Heavy Rail Rapid Transit Operation	3,100
Alternative C: Rehabilitated Heavy Rail Rapid Transit Operation	1,500

Source: ~~Gerard~~ Gerrard, Michael, ***How Public Works Projects Affect Employment: A Case Study of Westway and Its Transit Alternatives,*** Sierra Club/Open Space Institute, New York, November, 1977. Copyrighted material used with permission.

Transit and Government Policy

Many groups are advocating the establishment of paratransit service to supplement urban transit. Is there a place for paratransit in urban transportation?

America's cities with their varied forms require a mixture of conventional transit and paratransit providing a family of services that can be designed or shaped to fit the needs of a particular portion of the community. Paratransit services such as demand-responsive buses, vanpools, and subscription buses must be planned in the context of the total transportation system. They must not be mistakenly identified as substitutes for other established and developing transit modes, but rather, must be considered as complementary and supplementary to fixed-route transit.

In rural America and areas of exurban development, paratransit may be the only form of transit. The wide dispersal of residences, jobs, schools, and other activity locations precludes the use of conventional transit service. Yet the need exists for some form of public transportation. Paratransit may fill this need in many such areas since its characteristics, such as vehicle size and routing flexibility, are better adapted than conventional transit to serving dispersed locations.

In low density developing areas, paratransit might serve as the initial phase in transit development. For example, a van pooling program could be established to serve a medium or large employment center. Experience has shown that successes in such projects encourage new employees to locate their residences in the pool service area and develop the habit of riding rather than driving. When sufficient numbers exist, subscription bus services and fixed-route transit service become practical.

Another important factor in evaluating paratransit service is its capability for serving special travel needs of the elderly and handicapped, many of

Paratransit services provide special transportation for elderly, handicapped, and other persons who cannot use fixed-route transit service. This taxicab-type vehicle operated by the Orange County Transit District in East Anaheim, California, picks up passengers at their homes and takes them directly to their destinations.

whom have mobility needs which are not well served by automobiles or conventional transit. Paratransit might provide that mobility. Transportation services now provided by many social service agencies are, in a sense, paratransit. However, these existing services are nearly always uncoordinated and energy inefficient. Wherever unified paratransit services replace these uncoordinated services, the overall level of personal mobility often rises due to central coordination and operation of complementary transit services.

What changes in national policy are needed to meet increasing demands for transit service?

Transit ridership in the United States was increasing at an annual rate of seven percent in mid 1979. The rate of transit ridership increase has increased each of the past four years. Increased transit ridership is a result of petroleum shortages and growing energy costs that have characterized the last half of the 1970's, and service improvements resulting from public expenditures for transit. Just as there is no reason to expect petroleum to become cheap and plentiful again, there is no reason not to expect people to use transit in increasing numbers as an alternative to private transportation. At current growth rates, transit ridership will double in the next decade. If federal government policies are changed to further transit improvement, ridership growth could far exceed that conservative estimate.

Soon to be made decisions in three areas of federal policy will have dramatic effects on transit growth: the amount of federal funding for transit, the predictability of federal funding for transit, and the implementation of federal regulations that make transit more expensive without improving urban mobility.

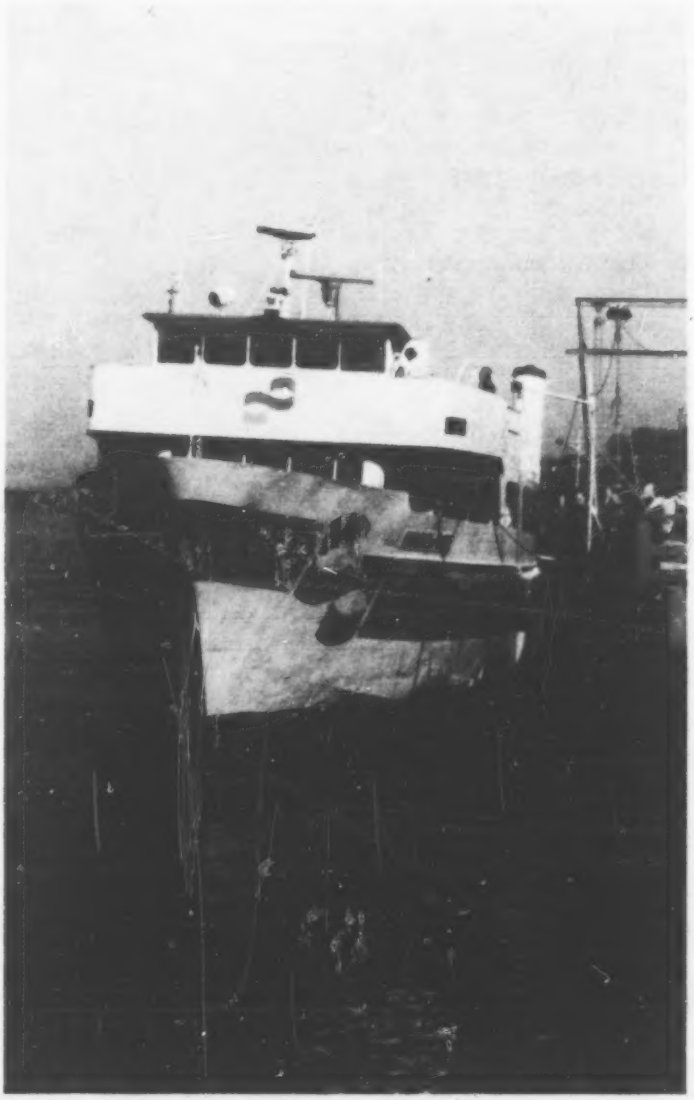
Even with conservative growth estimates, the capital needs of transit are extensive. Production of 10,000 buses per year, twice the current production rate, would replace worn out buses now in service and increase the transit fleet by 50 percent by 1985. Modernization of existing rail rapid transit lines and completion of rail rapid transit lines currently under construction would greatly improve transit in many of America's largest cities. Authorization of rail transit in large cities currently dependent on buses would create new transit systems with increased passenger capacity but using less petroleum fuel than today's transit systems.

Building, improving, and operating transit systems is costly. To meet America's mobility needs, the federal government must increase transit funding and provide funding on a predictable basis. Predictable funding would allow transit systems to implement long term plans with high energy savings payoffs. Predictable funding would encourage private manufacturers of transit equipment to increase their production capacity.

The federal government should also consider the impact on productivity of requirements imposed on transit as conditions for receipt of federal assistance. Many existing regulations have increased the cost of providing transit service and decreased productivity.

The federal government should recognize that transit is one part of the solution of dwindling energy supplies. Transit does not need to be reinvented, it needs to be helped to grow so that cheap, energy-efficient transportation will be available to more Americans.

Profile of Transit Services in 1978



SECTION C

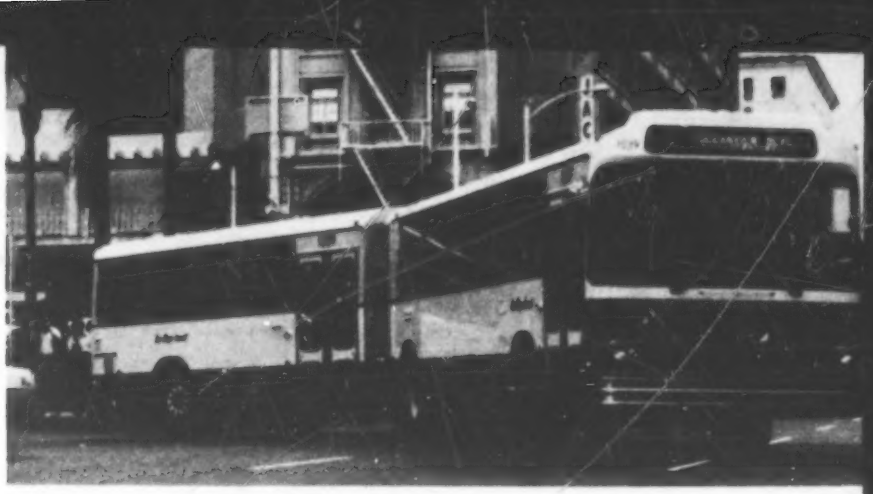
Profile of Transit Services In 1978

Motor Bus Statistics

Motor Bus: Rubber tired, self-propelled, manually steered transit vehicle with fuel supply carried on board the vehicle.

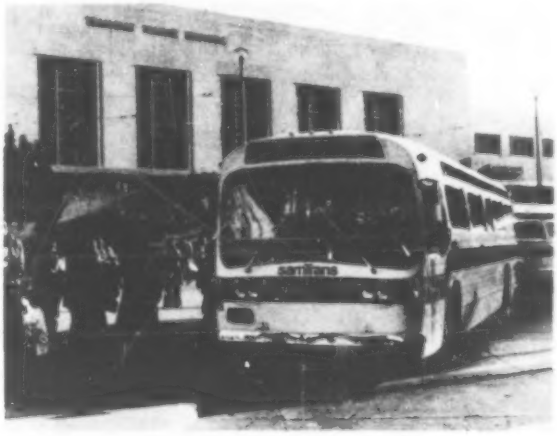
Motor Bus Systems (December 31, 1978)	965
Miles of Line (One Way)	70,600
Miles of Route (One Way)	122,500
Motor Buses	52,866
Linked Passenger Trips (Millions) — 1978	4,405.8
Unlinked Passenger Trips (Millions) — 1978	5,142.0
Estimated Passenger Miles (Millions) — 1978	20,708.2
Average Length of Linked Passenger Trip (Miles)	4.70
Average Length of Unlinked Passenger Trip (Miles)	4.02
Operating Revenue (Millions) — 1978	$ 1,671.4
Passenger Revenue (Millions) — 1978	$ 1,575.2
Average Fare — 1978	$ 0.358
Passenger Vehicle Miles Operated (Millions) — 1978	1,630.5

Advanced Design Buses, called ADBs, began entering service in 1978. Providing better passenger access and offering more amenities than the buses they replace, ADBs are built by two U.S. manufacturers: General Motors Truck and Coach Division, which built this RTS II bus operated by the Dallas Transit System, and Grumman-Flxible Corporation, which builds the Model 870 bus.



Articulated buses bend in the middle so that the extra long vehicles can negotiate city streets. These 60-foot-long coaches provide greater passenger capacity and economy on heavily travelled routes compared to a normal 40-foot-long transit bus. This coach, built by the AM General Corporation, is operated by the San Diego Transit Corporation.

Constituting 75 percent of U.S. transit buses, the 40-foot motor bus is truly the standard transit vehicle. This San Mateo County Transit District bus is a New-Look coach. Although most transit buses are New-Look buses, they are now being replaced by more modern Advanced Design Buses.



Heavy Rail Statistics

Heavy Rail: Subway-type transit vehicle railway constructed on exclusive private right-of-way with high-level platform stations; formerly known as "subway" or "elevated (railway)."

Heavy Rail Operations (December 31, 1978)	10
Miles of Line (One Way)	580
Miles of Route (One Way)	1,085
Heavy Rail Cars	9,567
Heavy Rail Stations	811
Linked Passenger Trips (Millions) — 1978	1,415.0
Unlinked Passenger Trips (Millions) — 1978	2,285.0
Estimated Passenger Miles (Millions) — 1978	10,329.5
Average Length of Linked Passenger Trip (Miles)	7.30
Average Length of Unlinked Passenger Trip (Miles)	4.52
Operating Revenue (Millions) — 1978	$ 664.9
Passenger Revenue (Millions) — 1978	$ 652.2
Average Fare — 1978	$ 0.461
Passenger Vehicle Miles Operated (Millions) — 1978	363.5

Continued next page.

Heavy Rail Operations	*Location*
Chicago Transit Authority	Chicago, IL
Greater Cleveland Regional Transit Authority	Cleveland, OH
Massachusetts Bay Transportation Authority	Boston, MA
Municipality of Metropolitan Seattle[a]	Seattle, WA
New York City Transit Authority	Brooklyn, NY
Port Authority Trans-Hudson Corporation	New York, NY
Port Authority Transit Corporation of Pennsylvania and New Jersey	Camden, NJ
San Francisco Bay Area Rapid Transit District	Oakland, CA
Southeastern Pennsylvania Transportation Authority	Philadelphia, PA
Washington Metropolitan Area Transit Authority	Washington, DC

(a) Monorail

Heavy rail transit is the most efficient way to move large numbers of people in urban areas. This six-car Chicago Transit Authority train can carry up to 900 persons at one time.

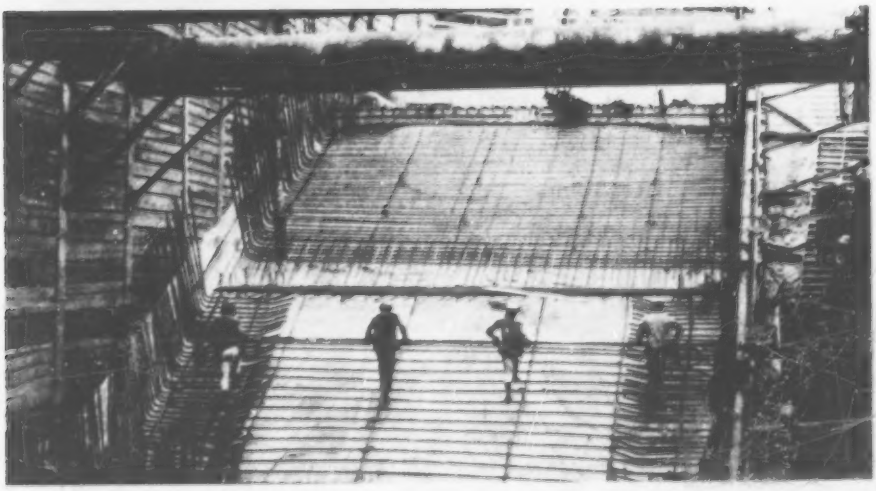
Light Rail Statistics

Light Rail: Streetcar-type transit vehicle railway constructed on city streets, semi-private right-of-way, and exclusive private right-of-way; formerly known as "streetcar" ("trolley car") and "subway-surface" depending upon local usage or preference.

Light Rail Operations (December 31, 1978)	9
Miles of Line (One Way)	207
Miles of Route (One Way)	266
Light Rail Cars	944
Linked Passenger Trips (Millions) — 1978	79.5
Unlinked Passenger Trips (Millions) — 1978	104.0
Estimated Passenger Miles (Millions) — 1978	392.0
Average Length of Linked Passenger Trip (Miles)	4.93
Average Length of Unlinked Passenger Trip (Miles)	3.77
Operating Revenue (Millions) — 1978	$ 27.4
Passenger Revenue (Millions) — 1978	$ 26.6
Average Fare — 1978	$ 0.334
Passenger Vehicle Miles Operated (Millions) — 1978	19.5

Continued page 70.

While bus riders see their bus drivers every day, heavy rail passengers see few of the people who make their trip possible. Two Port Authority Trans-Hudson Corporation employees (above) monitor a closed circuit television system to direct passenger flow and provide passenger security. The operator of this Port Authority Transit Corporation train (left) operates train doors and oversees the train's automatic controls. Four construction workers carry a reinforcing rod (bottom) into position prior to pouring concrete for a new station on the Washington Metropolitan Area Transit Authority's heavy rail system.



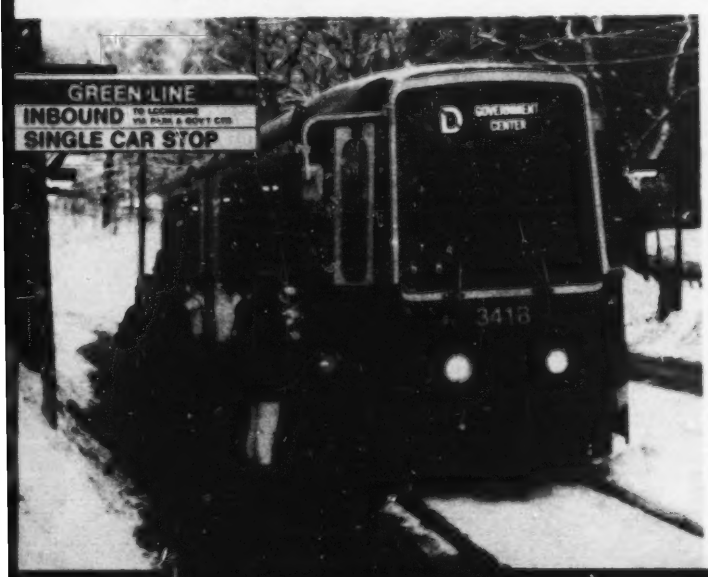
Light Rail Operations	*Location*
City of Detroit Department of Transportation	Detroit, MI
Dillard's Department Store	Fort Worth, TX
Greater Cleveland Regional Transit Authority	Cleveland, OH
Massachusetts Bay Transportation Authority	Boston, MA
New Orleans Public Service, Inc.	New Orleans, LA
Port Authority of Allegheny County	Pittsburgh, PA
San Francisco Municipal Railway	San Francisco, CA
Southeastern Pennsylvania Transportation Authority	Philadelphia, PA
Transport of New Jersey	Newark, NJ

Trolley Coach Statistics

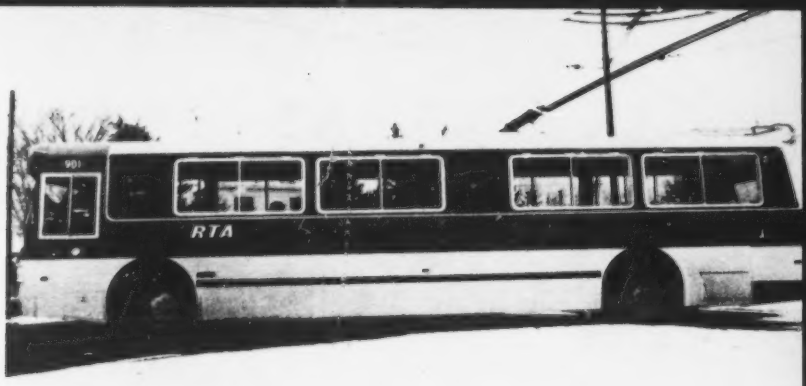
Trolley Coach: Rubber-tired transit vehicle, manually steered, propelled by electric motors drawing current—normally through overhead wires—from a central power source not on board the vehicle.

Trolley Coach Operations (December 31, 1978)	5
Miles of Route (One Way)	169
Trolley Coaches	593
Linked Passenger Trips (Millions) — 1978	51.1
Unlinked Passenger Trips (Millions) — 1978	70.0
Estimated Passenger Miles (Millions) — 1978	188.7
Average Length of Linked Passenger Trip (Miles)	3.69
Average Length of Unlinked Passenger Trip (Miles)	2.70
Operating Revenue (Millions) — 1978	$ 14.6
Passenger Revenue (Millions) — 1978	$ 14.4
Average Fare — 1978	$ 0.281
Passenger Vehicle Miles (Millions) — 1978	13.3

Trolley Coach Operations	*Location*
Massachusetts Bay Transportation Authority	Boston, MA
Miami Valley Regional Transit Authority	Dayton, OH
Municipality of Metropolitan Seattle	Seattle, WA
San Francisco Municipal Railway	San Francisco, CA
Southeastern Pennsylvania Transportation Authority	Philadelphia, PA



Snow is one cause of sudden increases in transit ridership. Because transit vehicles keep operating long after automobiles have been stopped by snow and ice, many new passengers turn to transit to make essential trips. These passengers are boarding a light rail vehicle in Boston under more normal traffic conditions after the city has recovered from a blizzard.



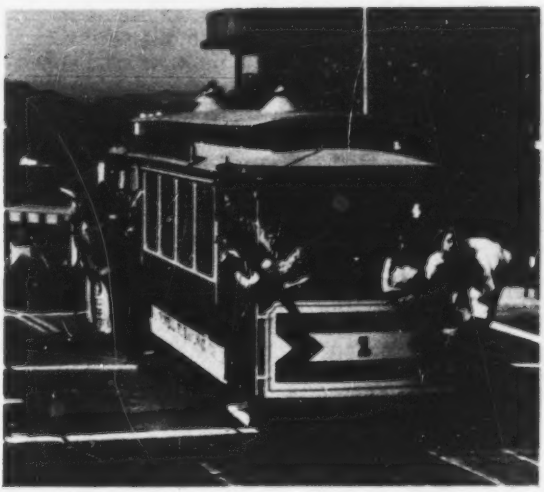
Electric transit vehicles are one means of reducing America's dependence on petroleum fuels. Less than five percent of electricity used by transit vehicles is generated by petroleum. Although heavy rail cars and commuter railroad cars are predominate, U.S. Transit systems operate many other types of electric vehicles. Trolley coaches (above) are buses with electric motors drawing current from overhead wires. This coach, operated by the Miami Valley Regional Transit Authority in Dayton, Ohio, is the latest model trolley coach. The Port Authority of Allegheny County Monongahela Incline in Pittsburgh (left) is one of five inclined planes operated in urban areas of the United States. This San Francisco Municipal Railway light rail vehicle (below), stopped in a newly opened Muni Metro subway station, is a 73-foot-long articulated unit able to carry over 200 passengers.

Cable Car Statistics

Cable Car: Transit vehicle railway operating in mixed street traffic with unpowered, individually-controlled transit vehicles propelled by moving cables located below the street surface and powered by engines or motors at a central location not on board the vehicle.

Cable Car Operations (December 31, 1978)	1
Cable Cars	39

Cable Car Operations	*Location*
San Francisco Municipal Railway	San Francisco, CA



America's first form of mechanized transportation when introduced in 1873, cable cars are now operated only in San Francisco. These gaping passengers show that both tourists and natives find a cable car ride one of the best ways to see the city. This San Francisco Municipal Railway car is climbing Russian Hill enroute from its Hyde Street Pier terminal to Chinatown and downtown San Francisco.

Inclined Plane Statistics

(Only operating results for two inclined planes operated by transit systems—Port Authority of Allegheny County and Chattanooga Area Regional Transportation Authority—are included in summary tables of the *Transit Fact Book.*)

Inclined Plane: Transit passenger vehicle railway operating over private right-of-way on steep grades with unpowered vehicles propelled by moving cables attached to the vehicles and powered by engines or motors at a central location not on board the vehicle.

Inclined Planes Operated by Transit Systems (December 31, 1978)	2
Inclined Plane Cars Operated by Transit Systems	4

Urban Inclined Planes	*Location*
Chattanooga Regional Area Transportation Authority (Lookout Mountain Incline)[a]	Chattanooga, TN
Duquesne Heights Incline	Pittsburgh, PA
Fourth Street Elevator	Dubuque, IA
The Incline (Johnstown-Westmont)	Johnstown, PA
Port Authority of Allegheny County (Monongahela Incline)[a]	Pittsburgh, PA

(a) Inclined planes operated by transit systems.

Urban Ferry Boat Statistics

(Ferry boat statistics are not included in "transit industry" summary tables in the *Transit Fact Book*. All data reported for Ferry Boat operations are in addition to data reported for the "transit industry" elsewhere in the *Transit Fact Book*.)

Ferry Boat: Passenger-carrying marine vessel providing frequent "bridge" service over a fixed route and on a published time schedule between two or more points.

Urban Ferry Boat Operations (December 31, 1978)	16
Miles of Route (One Way)	145
Ferry Boats	65
Linked Passenger Trips (Millions) — 1978	61.7
Estimated Passenger Miles (Millions) — 1978	333.2
Average Length of Linked Passenger Trips (Miles)	5.40
Operating Revenue (Millions) — 1978	$ 41.4
Operating Expense (Millions) — 1978	$ 86.9
Average Fare — 1978[a]	$ 0.671
Ferry Boat Miles Operated (Millions) — 1978	1.6

Urban Ferry Boat Operations	*Location*
Anderson Ferry	Cincinnati, OH
Angel Island Ferry	San Francisco, CA
Balboa Island Ferry, Inc.	Los Angeles, CA
Casco Bay Lines	Portland, ME
City of New York Department of Marine and Aviation (Staten Island Ferry)	New York, NY
Commonwealth of Massachusetts Executive Office of Transportation and Construction	Boston, MA
Golden Gate Bridge, Highway and Transportation District	San Francisco, CA
Harbor Carriers, Inc.	San Francisco, CA
Mare Island Ferry Company	Vallejo, CA
Massachusetts Bay Line, Inc.	Boston, MA
Mississippi River Bridge Authority	New Orleans, LA
Puerto Rico Ports Authority	San Juan, PR
Rockaway Boat Lines	Brooklyn, NY
Texas State Department of Highways and Transportation	Corpus Christi, TX; Galveston, TX
Washington State Ferries	Seattle, WA
Wendella Sightseeing Corporation	Chicago, IL

(a) Includes fees collected for passage of automobile with passenger(s) on ferry boats transporting automobiles.

Commuter Railroad Statistics

(Commuter railroad statistics are not included in "transit industry" summary tables in the *Transit Fact Book*. All data reported for Commuter Railroad operations are in addition to data reported for the "transit industry" elsewhere in the *Transit Fact Book*.)

Continued next page. .

Commuter railroads provide dependable transportation to the distant suburbs of America's largest cities. Taking commuters home for the evening, this Northeastern Illinois Regional Transportation Authority train (above) is departing Beverly Hills station on the Chicago, Rock Island & Pacific Railroad Suburban Branch. RTA funds the operations of eight commuter railroads in the Chicago area. This father/daughter outing (left) aboard a PATrain will be the first train ride for many of these youngsters. PATrains are operated by the Port Authority of Allegheny County in Pittsburgh.

Commuter Railroad: That portion of "main-line railroad" (not "electric railway") transportation operations which encompasses urban passenger train service for local short-distance travel between a central city and adjacent suburbs; suburban rail passenger service—using both locomotive-hauled and self-propelled railroad passenger cars—is characterized by multi-trip tickets, specific station-to-station fares, railroad employment practices, and usually only one or two stations in the central business district.

Number of Commuter Railroads (December 31, 1978)	17
Miles of Route (One Way)	2,561
Commuter Rail Cars	4,864
Commuter Rail Stations	1,170
Linked Passenger Trips (Millions) — 1978	267.0
Estimated Passenger Miles (Millions) — 1978	5,526.9
Average Length of Linked Passenger Trip (Miles)	20.70
Operating Revenue (Millions) — 1978	$ 370.0
Operating Expense (Millions) — 1978	$ 778.0
Average Fare — 1978	$ 1.386
Commuter Rail Car Miles Operated (Millions) — 1978	159.0

Continued next page.

Variable route paratransit service supplements regular, fixed-route transit service in many communities. Variable route service provides door-to-door transportation for handicapped persons and provides basic service in low population density areas. Although most paratransit vehicles are operated by social service agencies, this 27-foot-long coach is operated in variable route service by the Regional Transit District in Denver, Colorado.

Commuter Railroads	*Operating Locations*
The Baltimore and Ohio Railroad Company	Washington, DC
Burlington Northern	Chicago, IL
Chicago and North Western Transportation Company	Chicago, IL
Chicago, Milwaukee, St. Paul & Pacific Railroad Company	Chicago, IL
Chicago, Rock Island & Pacific Railroad Company	Chicago, IL
Chicago South Shore & South Bend Railroad	Chicago, IL
Consolidated Rail Corporation	Boston, MA; Chicago, IL; Hoboken, NJ; Newark, NJ; New York, NY; Washington, DC
Illinois Central Gulf Railroad Company	Chicago, IL
The Long Island Rail Road Company	New York, NY
Massachusetts Bay Transportation Authority	Boston, MA[a]
Norfolk & Western Railway Company	Chicago, IL
The Pittsburgh & Lake Erie Railroad Company	Pittsburgh, PA
Port Authority of Allegheny County	Pittsburgh, PA[b]
Southeastern Michigan Transportation Authority	Detroit, MI[c]
Southeastern Pennsylvania Transportation Authority	Philadelphia, PA[d]
Southern Pacific Transportation Company	San Francisco, CA
Staten Island Rapid Transit Operating Auhtority	New York, NY

(a) Operated by the Boston and Maine Corporation for the Massachusetts Bay Transportation Authority.

(b) Operated by the Baltimore and Ohio Railroad Company under contract with the Port Authority of Allegheny County.

(c) Operated by the Grand Trunk Western Railroad Company under a purchase-of-service agreement with the Southeastern Michigan Transportation Authority.

(d) Operated by the Consolidated Rail Corporation under contract with the Southeastern Pennsylvania Transportation Authority.

Automated Guideway Transit Statistics

(Automated guideway transit (AGT) statistics are not included in "transit industry" summary tables in the ***Transit Fact Book.*** All data reported for Automated Guideway Transit operations are in addition to data reported for the "transit industry" elsewhere in the ***Transit Fact Book.***)

Automated Guideway Transit (AGT): Fixed-guideway rapid transit vehicles operating without vehicle operators or other crewpersons on board the vehicle.

Automated Guideway Transit Operations (December 31, 1978)	1
Automated Guideway Transit Vehicles	45

Automated Guideway Transit Operations	*Location*
West Virginia University	Morgantown, WV

Aerial Tramway Statistics

(Aerial tramway statistics are not included in "transit industry" summary tables in the ***Transit Fact Book.*** All data reported for Aerial Tramway operations are in addition to data reported for the "transit industry" elsewhere in the ***Transit Fact Book.***)

Aerial Tramway: System of aerial cables with unpowered passenger vehicles suspended from the cables, propelled by separate cables attached to the vehicle suspension system, and powered by engines or motors at a central location not on board the vehicle.

Aerial Tramway Transit Operations (December 31, 1978)	1
Aerial Tramway Transit Vehicles	2

Aerial Tramway Transit Operations	*Location*
Roosevelt Island Special Service Corporation	New York, NY

Public Paratransit Statistics

(Public paratransit statistics are not included in "transit industry" summary tables in the ***Transit Fact Book.*** All data reported for Public Paratransit operations are in addition to data reported for the "transit industry" elsewhere in the ***Transit Fact Book.***)

Public Paratransit: Collective passenger transportation for the general public and/or special categories of persons on a regular and predictable basis through demand-responsive scheduling and/or flexible routing of vehicles. The term public paratransit includes dial-a-ride, "shared-ride taxi," publicly-sponsored vanpools, subscription bus service, airport limousines, and jitneys (where legal and formally established). Taxicab services which provide "shared-ride" service only at the discretion of the driver and/or the passenger are not public paratransit.

Public Paratransit Operations (December 31, 1978)	14,000
Buses Operated in Public Paratransit Service[a]	3,000
Vans Operated in Public Paratransit Service[a]	15,000
Automobiles Operated in Public Paratransit Service[a]	14,000

(a) Excludes all public paratransit vehicles owned and operated by transit systems.

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